



RADIO TEST REPORT

FCC ID : Z8H89FT0073
Equipment : XE3-4TN Outdoor Wi-Fi 6e 4x4 Access Point with SDR
Brand Name : Cambium Networks
Model Name : XE3-4T
Applicant : Cambium Networks Inc.
3800 Golf Road Suite 360 Rolling Meadows IL United States 60008
Manufacturer : LITE-ON Technology Corp. Networking Plant
5F, No. 101, Neihuan N. Rd., Nanzih Dist., Kaohsiung City 811, Taiwan, R.O.C.
Standard : 47 CFR FCC Part 15.407

The product was received on Aug. 02, 2022, and testing was started from Aug. 02, 2022 and completed on Dec. 15, 2022. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.



Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory

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TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB-A12_1 Ver1.4



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.407(a)	Emission Bandwidth	PASS	-
3.3	15.407(a)	Maximum Output Power	PASS	-
3.4	15.407(a)	Power Spectral Density	PASS	-
3.5	15.407(b)	Unwanted Emissions	PASS	-

Declaration of Conformity:

1. The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.
2. The measurement uncertainty please refer to report "Measurement Uncertainty".

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen

Report Producer: Viola Huang



1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5150-5250	a, n (HT20), ac (VHT20), ax (HEW20)	5180-5240	36-48 [4]
5725-5850		5745-5825	149-165 [5]
5150-5250	n (HT40), ac (VHT40), ax (HEW40)	5190-5230	38-46 [2]
5725-5850		5755-5795	151-159 [2]
5150-5250	ac (VHT80), ax (HEW80)	5210	42 [1]
5725-5850		5775	155 [1]

For Radio 2

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11a	20	2
5.15-5.25GHz	802.11n HT20	20	2
5.15-5.25GHz	802.11n HT20-BF	20	2
5.15-5.25GHz	802.11ac VHT20	20	2
5.15-5.25GHz	802.11ac VHT20-BF	20	2
5.15-5.25GHz	802.11ax HEW20	20	2
5.15-5.25GHz	802.11ax HEW20-BF	20	2
5.15-5.25GHz	802.11n HT40	40	2
5.15-5.25GHz	802.11n HT40-BF	40	2
5.15-5.25GHz	802.11ac VHT40	40	2
5.15-5.25GHz	802.11ac VHT40-BF	40	2
5.15-5.25GHz	802.11ax HEW40	40	2
5.15-5.25GHz	802.11ax HEW40-BF	40	2
5.15-5.25GHz	802.11ac VHT80	80	2
5.15-5.25GHz	802.11ac VHT80-BF	80	2
5.15-5.25GHz	802.11ax HEW80	80	2
5.15-5.25GHz	802.11ax HEW80-BF	80	2
5.725-5.85GHz	802.11a	20	2
5.725-5.85GHz	802.11n HT20	20	2
5.725-5.85GHz	802.11n HT20-BF	20	2
5.725-5.85GHz	802.11ac VHT20	20	2
5.725-5.85GHz	802.11ac VHT20-BF	20	2
5.725-5.85GHz	802.11ax HEW20	20	2
5.725-5.85GHz	802.11ax HEW20-BF	20	2
5.725-5.85GHz	802.11n HT40	40	2



Band	Mode	BWch (MHz)	Nant
5.725-5.85GHz	802.11n HT40-BF	40	2
5.725-5.85GHz	802.11ac VHT40	40	2
5.725-5.85GHz	802.11ac VHT40-BF	40	2
5.725-5.85GHz	802.11ax HEW40	40	2
5.725-5.85GHz	802.11ax HEW40-BF	40	2
5.725-5.85GHz	802.11ac VHT80	80	2
5.725-5.85GHz	802.11ac VHT80-BF	80	2
5.725-5.85GHz	802.11ax HEW80	80	2
5.725-5.85GHz	802.11ax HEW80-BF	80	2

For Radio 3

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11a	20	4
5.15-5.25GHz	802.11n HT20	20	4
5.15-5.25GHz	802.11n HT20-BF	20	4
5.15-5.25GHz	802.11ac VHT20	20	4
5.15-5.25GHz	802.11ac VHT20-BF	20	4
5.15-5.25GHz	802.11ax HEW20	20	4
5.15-5.25GHz	802.11ax HEW20-BF	20	4
5.15-5.25GHz	802.11n HT40	40	4
5.15-5.25GHz	802.11n HT40-BF	40	4
5.15-5.25GHz	802.11ac VHT40	40	4
5.15-5.25GHz	802.11ac VHT40-BF	40	4
5.15-5.25GHz	802.11ax HEW40	40	4
5.15-5.25GHz	802.11ax HEW40-BF	40	4
5.15-5.25GHz	802.11ac VHT80	80	4
5.15-5.25GHz	802.11ac VHT80-BF	80	4
5.15-5.25GHz	802.11ax HEW80	80	4
5.15-5.25GHz	802.11ax HEW80-BF	80	4
5.725-5.85GHz	802.11a	20	4
5.725-5.85GHz	802.11n HT20	20	4
5.725-5.85GHz	802.11n HT20-BF	20	4
5.725-5.85GHz	802.11ac VHT20	20	4
5.725-5.85GHz	802.11ac VHT20-BF	20	4
5.725-5.85GHz	802.11ax HEW20	20	4
5.725-5.85GHz	802.11ax HEW20-BF	20	4
5.725-5.85GHz	802.11n HT40	40	4
5.725-5.85GHz	802.11n HT40-BF	40	4
5.725-5.85GHz	802.11ac VHT40	40	4
5.725-5.85GHz	802.11ac VHT40-BF	40	4



Band	Mode	BWch (MHz)	Nant
5.725-5.85GHz	802.11ax HEW40	40	4
5.725-5.85GHz	802.11ax HEW40-BF	40	4
5.725-5.85GHz	802.11ac VHT80	80	4
5.725-5.85GHz	802.11ac VHT80-BF	80	4
5.725-5.85GHz	802.11ax HEW80	80	4
5.725-5.85GHz	802.11ax HEW80-BF	80	4

Note:

- ♦ 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- ♦ VHT20, VHT40, VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM, modulation.
- ♦ HEW20, HEW40, HEW80 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- ♦ BWch is the nominal channel bandwidth.


1.1.2 Antenna Information

Set	Port					Brand Name	Part Name	Antenna Type	Connector	Gain (dBi)
	WLAN 2.4GHz (Radio 1)	WLAN 5GHz (Radio 2)	WLAN 5GHz (Radio 3)	BT (Radio 4)	GPS (Radio 5)					
1	1	1	2	-	-	LYNwave	ALX22X-121050-00	Dipole	N-Type	Note 1
	2	2	4	-	-					
	-	-	1	-	-					
	-	-	3	-	-					
2	1	1	2	-	-	SmartAnt	SAA19-220130	Dipole	N-Type	
	2	2	4	-	-					
	-	-	1	-	-					
	-	-	3	-	-					
3	-	-	2	-	-	LYNwave	OLX22X-127130-A	Patch	N-Type	
	-	-	4	-	-					
	-	-	1	-	-					
	-	-	3	-	-					
4	1	-	-	-	-	EAHiSON	ANT-DIR15-2X2-2.4 G-01	Panel	N-Female	
	2	-	-	-	-					
5	-	1	2	-	-	KBT	ANT-DIR15-2X2-5.0 G-01	Panel	N-Female	
	-	2	4	-	-					
	-	-	1	-	-					
	-	-	3	-	-					
6	-	-	-	-	1	Cirocomm	03V0134913Z010T	Marine GPS	SMA	
7	-	-	-	1	-	INPAQ	RFPCA403422IMAB 702	PCB	I-PEX	



Note 1:

Set	Antenna Gain (dBi)				Cable loss (dB)				Net Gain (dBi)			
	WLAN 2.4GHz (Radio 1)	BT (Radio 4)	GPS (Radio 5)		WLAN 2.4GHz (Radio 1)	BT (Radio 4)	GPS (Radio 5)		WLAN 2.4GHz (Radio 1)	BT (Radio 4)	GPS (Radio 5)	
			1575.42 MHz	1602 MHz			1575.42 MHz	1602 MHz			1575.42 MHz	1602 MHz
1	4.4	-	-	-	-	-	-	-	4.4	-	-	-
2	3	-	-	-	-	-	-	-	3	-	-	-
4	18	-	-	-	0.77	-	-	-	17.23	-	-	-
6	-	-	3	4.5	-	-	-	-	-	-	3	4.5
7	-	3.73	-	-	-	-	-	-	-	3.73	-	-

Set	Antenna Gain (dBi)								Cable loss (dB)								Net Gain (dBi)							
	WLAN 5GHz (Radio 2)				WLAN 5GHz (Radio 3)				WLAN 5GHz (Radio 2)				WLAN 5GHz (Radio 3)				WLAN 5GHz (Radio 2)				WLAN 5GHz (Radio 3)			
	UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 1	UNII 2A	UNII 2C	UNII 3
1	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	-	-	-	-	-	-	-	-	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
2	5	5	6	6	5	5	6	6	-	-	-	-	-	-	-	-	5	5	6	6	5	5	6	6
3	-	-	-	-	11	11	11	11	-	-	-	-	1.45	1.45	1.6	1.6	-	-	-	-	9.55	9.55	9.4	9.4
5	18	18	18	18	18	18	18	18	1.45	1.45	1.6	1.6	1.45	1.45	1.6	1.6	16.55	16.55	16.4	16.4	16.55	16.55	16.4	16.4

Note 2: The EUT has five sets of antenna for WLAN and one set of antenna for GPS and Bluetooth.

Note 3: The above information was declared by manufacturer.

Note 4: The antenna set 1 and set 2 are the same antenna type, only the highest gain antenna (antenna set 1 for 2.4GHz and 5GHz UNII 1, antenna set 2 for 5GHz UNII 3) were selected to test and record in this report.

Note 5: The EUT doesn't enable the DFS band.

Note 6: Polarization of antenna set 3: 2*Horizontal, 2*Vertical. so array gain only adds 10log (2).

Polarization of antenna set 4: 1*Horizontal, 1*Vertical. so the array gain is 0dBi.

Polarization of antenna set 5: Radio 2: 1*Horizontal, 1*Vertical. so the array gain is 0dBi.

Radio 3: 2*Horizontal, 2*Vertical. so array gain only adds 10log (2).

Note 7: Directional gain information.

Type	Maximum Output Power	Power Spectral Density
Non-BF	Directional gain = Max.gain + array gain. For power measurements on IEEE 802.11 devices Array Gain = 0 dB (i.e., no array gain) for N ANT ≤ 4	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ant}} \left[\sum_{k=1}^{N_{ant}} g_{j,k} \right]^2}{N_{ant}} \right]$
BF	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ant}} \left[\sum_{k=1}^{N_{ant}} g_{j,k} \right]^2}{N_{ant}} \right]$	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ant}} \left[\sum_{k=1}^{N_{ant}} g_{j,k} \right]^2}{N_{ant}} \right]$

Ex.

Directional Gain (NSS1) formula :

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ant}} \left[\sum_{k=1}^{N_{ant}} g_{j,k} \right]^2}{N_{ant}} \right]$$

$$NSS1(g1,1) = 10^{G1/20} ; NSS1(g1,2) = 10^{G2/20} ; NSS1(g1,3) = 10^{G3/20} ; NSS1(g1,4) = 10^{G4/20}$$

$$g_{j,k} = (NSS1(g1,1) + NSS1(g1,2) + NSS1(g1,3) + NSS1(g1,4))^2$$

$$DG = 10 \log[(NSS1(g1,1) + NSS1(g1,2) + NSS1(g1,3) + NSS1(g1,4))^2 / N_{ANT}] \Rightarrow 10$$

$$\log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / N_{ANT}]$$

Where ;

Antenna set 1

$$2.4G \ G1 = 4.4 \text{ dBi}; G2 = 4.4 \text{ dBi}; DG = 4.4 \text{ dBi}$$

$$5G \text{ Band1} \ G1 = 5.5 \text{ dBi}; G2 = 5.5 \text{ dBi}; G3 = 5.5 \text{ dBi}; G4 = 5.5 \text{ dBi}; DG = 5.5 \text{ dBi}$$

$$5G \text{ Band2} \ G1 = 5.5 \text{ dBi}; G2 = 5.5 \text{ dBi}; G3 = 5.5 \text{ dBi}; G4 = 5.5 \text{ dBi}; DG = 5.5 \text{ dBi}$$

$$2.4G \ DG = 7.41 \text{ dBi}$$

For 2TX

$$\text{Radio 2 } 5G \text{ Band1 } DG = 8.51 \text{ dBi}$$

$$\text{Radio 2 } 5G \text{ Band2 } DG = 8.51 \text{ dBi}$$

For 4TX

$$\text{Radio 3 } 5G \text{ Band1 } DG = 11.52 \text{ dBi}$$

$$\text{Radio 3 } 5G \text{ Band2 } DG = 11.52 \text{ dBi}$$

Antenna set 2

$$5G \text{ Band3} \ G1 = 6 \text{ dBi}; G2 = 6 \text{ dBi}; G3 = 6 \text{ dBi}; G4 = 6 \text{ dBi}; DG = 6 \text{ dBi}$$

$$5G \text{ Band4} \ G1 = 6 \text{ dBi}; G2 = 6 \text{ dBi}; G3 = 6 \text{ dBi}; G4 = 6 \text{ dBi}; DG = 6 \text{ dBi}$$

For 2TX

$$\text{Radio 2 } 5G \text{ Band3 } DG = 9.01 \text{ dBi}$$

$$\text{Radio 2 } 5G \text{ Band4 } DG = 9.01 \text{ dBi}$$

For 4TX

$$\text{Radio 3 } 5G \text{ Band3 } DG = 12.02 \text{ dBi}$$

$$\text{Radio 3 } 5G \text{ Band4 } DG = 12.02 \text{ dBi}$$

**Antenna set 3(Cross-Polarized Antenna)**

5G Band1 G1 = 9.55 dBi; G2 = 9.55 dBi; G3 = 9.55 dBi; G4 = 9.55 dBi; DG = 9.55 dBi

5G Band2 G1 = 9.55 dBi; G2 = 9.55 dBi; G3 = 9.55 dBi; G4 = 9.55 dBi; DG = 9.55 dBi

5G Band3 G1 = 9.4 dBi; G2 = 9.4 dBi; G3 = 9.4 dBi; G4 = 9.4 dBi; DG = 9.4 dBi

5G Band4 G1 = 9.4 dBi; G2 = 9.4 dBi; G3 = 9.4 dBi; G4 = 9.4 dBi; DG = 9.4 dBi

Radio 3 5G Band1 DG = 12.56 dBi

Radio 3 5G Band2 DG = 12.56 dBi

Radio 3 5G Band3 DG = 12.41 dBi

Radio 3 5G Band4 DG = 12.41 dBi

Antenna set 4(Cross-Polarized Antenna)

2.4G G1 = 17.23 dBi; G2 = 17.23 dBi

DG = 17.23 dBi

Antenna set 5(Cross-Polarized Antenna)

5G Band1 G1 = 16.55 dBi; G2 = 16.55 dBi; G3 = 16.55 dBi; G4 = 16.55 dBi; DG = 16.55 dBi

5G Band2 G1 = 16.55 dBi; G2 = 16.55 dBi; G3 = 16.55 dBi; G4 = 16.55 dBi; DG = 16.55 dBi

5G Band3 G1 = 16.4 dBi; G2 = 16.4 dBi; G3 = 16.4 dBi; G4 = 16.4 dBi; DG = 16.4 dBi

5G Band4 G1 = 16.4 dBi; G2 = 16.4 dBi; G3 = 16.4 dBi; G4 = 16.4 dBi; DG = 16.4 dBi

For 2TX

Radio 2 5G Band1 DG = 16.55 dBi

Radio 2 5G Band2 DG = 16.55 dBi

Radio 2 5G Band3 DG = 16.40 dBi

Radio 2 5G Band4 DG = 16.40 dBi

For 4TX

Radio 3 5G Band1 DG = 19.56 dBi

Radio 3 5G Band2 DG = 19.56 dBi

Radio 3 5G Band3 DG = 19.41 dBi

Radio 3 5G Band4 DG = 19.41 dBi

For Radio 1**For 2.4GHz:****For IEEE 802.11b/g/n/VHT/ax mode (2TX/2RX):**

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

For Radio 2**For 5GHz UNII 1, 3:****For IEEE 802.11a/n/ac/ax mode (2TX/2RX):**

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

For Radio 3**For 5GHz UNII 1, 3:****For IEEE 802.11a/n/ac/ax mode (4TX/4RX):**

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit/receive simultaneously.

For Radio 4**Bluetooth (1TX/1RX):**

Only Port 1 can be used as transmitting/receiving antenna.

For Radio 5**GPS (1RX):**

Only Port 1 can be used as receiving antenna.



1.1.3 Mode Test Duty Cycle

For Radio 2

For antenna set 1 for UNII 1 and antenna set 2 for UNII 3

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.931	0.31	1.435m	1k
802.11ax HEW20	0.954	0.2	5.448m	300
802.11ax HEW20-BF	0.942	0.26	5.446m	300
802.11ax HEW40	0.956	0.2	5.448m	300
802.11ax HEW40-BF	0.954	0.2	5.446m	300
802.11ax HEW80	0.958	0.19	5.448m	300
802.11ax HEW80-BF	0.94	0.27	5.446m	300

For antenna set 5

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.927	0.33	1.435m	1k
802.11ax HEW20	0.961	0.17	5.448m	300
802.11ax HEW20-BF	0.944	0.25	5.446m	300
802.11ax HEW40	0.954	0.2	5.448m	300
802.11ax HEW40-BF	0.952	0.21	5.448m	300
802.11ax HEW80	0.953	0.21	5.448m	300
802.11ax HEW80-BF	0.934	0.3	5.448m	300

For Radio 3

For antenna set 1 for UNII 1 and antenna set 2 for UNII 3

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.933	0.3	1.435m	1k
802.11ax HEW20	0.927	0.33	5.448m	300
802.11ax HEW20-BF	0.951	0.22	1.995m	1k
802.11ax HEW40	0.883	0.54	5.447m	300
802.11ax HEW40-BF	0.918	0.37	1.821m	1k
802.11ax HEW80	0.951	0.22	5.447m	300
802.11ax HEW80-BF	0.966	0.15	1.949m	1k

For antenna set 3

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.925	0.34	1.435m	1k
802.11ax HEW20	0.921	0.36	5.448m	300
802.11ax HEW20-BF	0.832	0.8	3.982m	300
802.11ax HEW40	0.925	0.34	5.448m	300
802.11ax HEW40-BF	0.845	0.73	3.491m	300
802.11ax HEW80	0.924	0.34	5.448m	300
802.11ax HEW80-BF	0.923	0.35	1.955m	1k

**For antenna set 5**

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.914	0.39	1.435m	1k
802.11ax HEW20	0.926	0.33	5.448m	300
802.11ax HEW20-BF	0.964	0.16	1.78m	1k
802.11ax HEW40	0.937	0.28	5.448m	300
802.11ax HEW40-BF	0.978	0.1	1.828m	1k
802.11ax HEW80	0.941	0.26	5.448m	300
802.11ax HEW80-BF	0.923	0.35	1.955m	1k

Note:

- ♦ DC is Duty Cycle.
- ♦ DCF is Duty Cycle Factor.

1.1.4 EUT Operational Condition

EUT Power Type	From PoE			
Beamforming Function	☒	With beamforming	☐	Without beamforming
	The product has beamforming function for 11n/VHT/11ax in radio 1 2.4GHz, 11n/11ac/11ax in radio 2 5GHz and radio 3 5GHz.			
Function	☒	Outdoor P2M	☐	Indoor P2M
	☐	Fixed P2P	☐	Client
	☒	Point-to-multipoint	☐	Point-to-point
Channel Puncturing Function	☐	Supported	☒	Unsupported
Support RU	☒	Full RU	☐	Partial RU
Test Software Version	QSPR_v5.0-00199			

Note: The above information was declared by manufacturer.

1.1.5 Table for EUT support function

Function
AP
Mesh
Bridge

Note1: For above table list, only AP mode was tested and recorded in this test.

Note2: The above information was declared by manufacturer.

1.1.6 Table for Radio function

Radio (R)	WLAN 2.4GHz	5GHz	Bluetooth	GPS
R1	V	-	-	-
R2	-	V (20/40/80MHz)	-	-
R3	-	V (20/40/80MHz)	-	-
R4	-	-	V	-
R5	-	-	-	V

Note: The above information was declared by manufacturer.

1.1.7 Table for Multiple Listing

EUT	DDR		GPS	
	Brand	Model	Brand	Model
1	MICRON	MT41K256M16TW-107	ST	TESEO-LIV3F
2	ISSI	IS43TR16256B-107MBL	Quectel	LC76G

Note 1: From the above models, model: EUT 1 was selected as representative EUT for other test and its data was recorded in this report ; EUT 2 was selected as representative EUT for AC Power-line Conducted and Unwanted Emissions below 1GHz and its data was recorded in this report.

Note 2: The above information was declared by manufacturer.



1.2 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013
- ♦ FCC KDB 789033 D02 v02r01

The following reference test guidance is not within the scope of accreditation of TAF.

- ♦ FCC KDB 662911 D01 v02r01
- ♦ FCC KDB 412172 D01 v01r01
- ♦ FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location Information	
Test Lab. : Sporton International Inc. Hsinchu Laboratory	
Hsinchu (TAF: 3787)	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.) TEL: 886-3-656-9065 FAX: 886-3-656-9085 Test site Designation No. TW3787 with FCC. Conformity Assessment Body Identifier (CABID) TW3787 with ISCED.

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
RF Conducted	TH03-CB	Owen Hsu	23.5~24.1 / 61~65	Aug. 05, 2022~Oct. 14, 2022
Radiated below 1GHz & above 1GHz (Co-location)	03CH05-CB	Simmon Cheng	23.1~24.3 / 57~60	Aug. 02, 2022~Dec. 15, 2022
Radiated above 1GHz (For other tests)	03CH01-CB	Simmon Cheng	23~23.9 / 55~58	Aug. 02, 2022~Nov. 07, 2022
	03CH02-CB	Simmon Cheng	22.4~24.3 / 56~59	Aug. 02, 2022~Nov. 07, 2022
AC Conduction	CO01-CB	Tim Chen	23~24 / 58~59	Nov. 08, 2022~Dec. 15, 2022

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	5.2 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.7 dB	Confidence levels of 95%
Conducted Emission	3.2 dB	Confidence levels of 95%
Output Power Measurement	0.8 dB	Confidence levels of 95%
Power Density Measurement	3.2 dB	Confidence levels of 95%
Bandwidth Measurement	2.0 %	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

For Radio 2

For antenna set 1 for UNII 1 and antenna set 2 for UNII 3

Mode	Power Setting
802.11a_Nss1,(6Mbps)_2TX	-
5180MHz	18
5200MHz	18
5240MHz	18.5
5745MHz	28
5785MHz	28
5825MHz	27.5
802.11ax HEW20_Nss1,(MCS0)_2TX	-
5180MHz	18.5
5200MHz	18.5
5240MHz	18
5745MHz	28.5
5785MHz	28
5825MHz	27.5
802.11ax HEW40_Nss1,(MCS0)_2TX	-
5190MHz	18
5230MHz	18
5755MHz	27
5795MHz	26
802.11ax HEW80_Nss1,(MCS0)_2TX	-
5210MHz	18
5775MHz	23.5
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-
5180MHz	17
5200MHz	17
5240MHz	17
5745MHz	28
5785MHz	28
5825MHz	28
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-
5190MHz	17
5230MHz	17
5755MHz	28
5795MHz	28



Mode	Power Setting
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	-
5210MHz	17
5775MHz	25

For antenna set 5

Mode	Power Setting
802.11a_Nss1,(6Mbps)_2TX	-
5180MHz	18
5200MHz	18
5240MHz	17.5
5745MHz	18.5
5785MHz	18.5
5825MHz	18.5
802.11ax HEW20_Nss1,(MCS0)_2TX	-
5180MHz	18.5
5200MHz	18.5
5240MHz	18
5745MHz	19
5785MHz	19
5825MHz	19
802.11ax HEW40_Nss1,(MCS0)_2TX	-
5190MHz	18
5230MHz	17.5
5755MHz	18.5
5795MHz	18.5
802.11ax HEW80_Nss1,(MCS0)_2TX	-
5210MHz	18
5775MHz	18.5
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-
5180MHz	21
5200MHz	21
5240MHz	20
5745MHz	21
5785MHz	21
5825MHz	21
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-
5190MHz	17
5230MHz	20
5755MHz	21
5795MHz	21
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	-



Mode	Power Setting
5210MHz	18
5775MHz	20

For Radio 3**For antenna set 1 for UNII 1 and antenna set 2 for UNII 3**

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5180MHz	14
5200MHz	14.5
5240MHz	14.5
5745MHz	25
5785MHz	25
5825MHz	25
802.11ax HEW20_Nss1,(MCS0)_4TX	-
5180MHz	13
5200MHz	13.5
5240MHz	13.5
5745MHz	25
5785MHz	25
5825MHz	25
802.11ax HEW40_Nss1,(MCS0)_4TX	-
5190MHz	13.5
5230MHz	13.5
5755MHz	23
5795MHz	25
802.11ax HEW80_Nss1,(MCS0)_4TX	-
5210MHz	13
5775MHz	19.5
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-
5180MHz	14
5200MHz	14
5240MHz	14
5745MHz	24
5785MHz	24
5825MHz	24
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-
5190MHz	14
5230MHz	14
5755MHz	24
5795MHz	24
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-



Mode	Power Setting
5210MHz	14
5775MHz	24

For antenna set 3

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5180MHz	16.5
5200MHz	16.5
5240MHz	16.5
5745MHz	21.5
5785MHz	21.5
5825MHz	21.5
802.11ax HEW20_Nss1,(MCS0)_4TX	-
5180MHz	16.5
5200MHz	16.5
5240MHz	16
5745MHz	21.5
5785MHz	21
5825MHz	21
802.11ax HEW40_Nss1,(MCS0)_4TX	-
5190MHz	16
5230MHz	16
5755MHz	21
5795MHz	21
802.11ax HEW80_Nss1,(MCS0)_4TX	-
5210MHz	16
5775MHz	19.5
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-
5180MHz	15
5200MHz	15
5240MHz	16
5745MHz	24
5785MHz	24
5825MHz	24
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-
5190MHz	15
5230MHz	15
5755MHz	24
5795MHz	24
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-
5210MHz	15



Mode	Power Setting
5775MHz	24

For antenna set 5

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5180MHz	11.5
5200MHz	11.5
5240MHz	11.5
5745MHz	15
5785MHz	15
5825MHz	15
802.11ax HEW20_Nss1,(MCS0)_4TX	-
5180MHz	11.5
5200MHz	11.5
5240MHz	11.5
5745MHz	14.5
5785MHz	14.5
5825MHz	15
802.11ax HEW40_Nss1,(MCS0)_4TX	-
5190MHz	14
5230MHz	15
5755MHz	14.5
5795MHz	14.5
802.11ax HEW80_Nss1,(MCS0)_4TX	-
5210MHz	12.5
5775MHz	14.5
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-
5180MHz	17
5200MHz	17
5240MHz	17
5745MHz	17
5785MHz	17
5825MHz	17
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-
5190MHz	17
5230MHz	17
5755MHz	17
5795MHz	17
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-
5210MHz	17
5775MHz	17

Note:

- ♦ Evaluated HEW20/HEW40/HEW80 mode only, due to similar modulation. The power setting of HT20/HT40/VHT20/VHT40/VHT80 mode are the same or lower than HEW20/HEW40/HEW80.

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	CTX
	A. The EUT performed testing in the following test mode. 1.EUT 1_R1 + Antenna set 1 2.EUT 1_R2 + Antenna set 2 3.EUT 1_R3 + Antenna set 2 4.EUT 1_R1 + Antenna set 4 5.EUT 1_R2 + Antenna set 5 6.EUT 1_R3 + Antenna set 5 7.EUT 1_R3 + Antenna set 3 8.EUT 1_R4 + Antenna set 7 Mode 7 has been evaluated to be the worst case among Mode 1~8, thus measurement for Mode 9 will follow this same test mode. 9.EUT 2_R3 + Antenna set 3 B. "EUT 2_R3 + Antenna set 3" has been evaluated to be the worst case from above test mode. Thus, the measurement will follow this same test mode.
1	EUT 1_R1 + Antenna set 1 + PoE

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emission Bandwidth Maximum Output Power Power Spectral Density
Test Condition	Conducted measurement at transmit chains
1	EUT 1_R2 + Antenna set 1 for UNII 1 + Antenna set 2 for UNII 3
2	EUT 1_R2 + Antenna set 5
3	EUT 1_R3 + Antenna set 1 for UNII 1 + Antenna set 2 for UNII 3
4	EUT 1_R3 + Antenna set 3
5	EUT 1_R3 + Antenna set 5

The Worst Case Mode for Following Conformance Tests	
Tests Item	Unwanted Emissions
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	CTX
	A. The EUT was performed at the X axis, Y axis, and Z axis position for Unwanted Emissions above 1GHz, and the worst case axis was found and listed below. So the measurement will follow this same test configuration. B. The EUT performed testing in the following test mode. 1.EUT 1 in Y axis_R1 + Antenna set 1 2.EUT 1 in X axis_R2 + Antenna set 2 3.EUT 1 in X axis_R3 + Antenna set 2 4.EUT 1 in X axis_R1 + Antenna set 4 5.EUT 1 in Y axis_R2 + Antenna set 5 6.EUT 1 in Y axis_R3 + Antenna set 5 7.EUT 1 in Y axis_R3 + Antenna set 3 8.EUT 1 in X axis_R4 + Antenna set 7 Mode 4 has been evaluated to be the worst case among Mode 1~8, thus measurement for Mode 9 will follow this same test mode. 9.EUT 2 in X axis_R1 + Antenna set 4 C. "EUT 1 in X axis_R1 + Antenna set 4 + PoE" has been evaluated to be the worst case from above test mode. Thus, the measurement will follow this same test mode.
1	EUT 1 in X axis_R1 + Antenna set 4 + PoE
Operating Mode > 1GHz	CTX
	The EUT was performed at the X axis, Y axis, and Z axis position, and the worst case axis was found and listed below. So the measurement will follow this same test configuration.
1	EUT 1 in X axis_R2 + Antenna set 1 for UNII 1 + Antenna set 2 for UNII 3
2	EUT 1 in Y axis_R2 + Antenna set 5
3	EUT 1 in X axis_R3 + Antenna set 1 for UNII 1 + Antenna set 2 for UNII 3
4	EUT 1 in Y axis_R3 + Antenna set 3
5	EUT 1 in Y axis_R3 + Antenna set 5



The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Radiated Emission Co-location
Test Condition	Radiated measurement
Operating Mode	Normal Link
	The EUT was performed at the X axis, Y axis, and Z axis position for Unwanted Emissions above 1GHz, and the worst case axis was found and listed below. So the measurement will follow this same test configuration.
1	EUT 1 in X axis_R1:WLAN 2.4GHz + R2: WLAN 5GHz
Refer to Appendix F for Radiated Emission Co-location.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	R1 (2.4G + antenna set 1) + R2 (5G + antenna set 2) + R3 (5G + antenna set 2) + R4 (Bluetooth + antenna set 7)
2	R1 (2.4G + antenna set 4) + R2 (5G + antenna set 5) + R3 (5G + antenna set 5) + R4 (Bluetooth + antenna set 7)
3	R1 (2.4G + antenna set 4) + R2 (5G + antenna set 5) + R3 (5G + antenna set 3) + R4 (Bluetooth + antenna set 7)
Refer to Sporton Test Report No.: FA290202 for Co-location RF Exposure Evaluation.	

Note: The PoE are for measurement only, would not be marketed.

Their information as below:

Power	Brand	Model
PoE	Cambium	NET-P60-56IN



2.3 EUT Operation during Test

For CTX Mode:

non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

During the test, the following programs under WIN 7 were executed.

The program was executed as follows:

1. During the test, the EUT operation to normal function.
2. Executed command fixed test channel under DOS.
3. Executed "Lantest.exe" to link with the remote workstation to transmit and receive packet by Client and transmit duty cycle no less than 98%.

For Normal Link:

During the test, the EUT operation to normal function.

2.4 Accessories

Accessories
Bracket 1*1 (Only for EUT 1~EUT 2 use)
Bracket 2*1 (Only for Antenna Set 3 use)
Bracket 3*1 (Only for Antenna Set 4 use)
Bracket 4*1 (Only for Antenna Set 5 use)
Antenna cable*6 (Only for Antenna Set 3~5 use)
Sealing collar*1



2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	PoE 2	Cambium	NET-P60-56IN	N/A
B	NB	DELL	E6430	N/A

For Radiated (below 1GHz):

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	NB	DELL	E4300	N/A
B	PoE 2	Cambium	NET-P60-56IN	N/A

For Radiated (above 1GHz):

For non beamforming mode

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	NB	DELL	E4300	N/A
B	PoE 2	Cambium	NET-P60-56IN	N/A

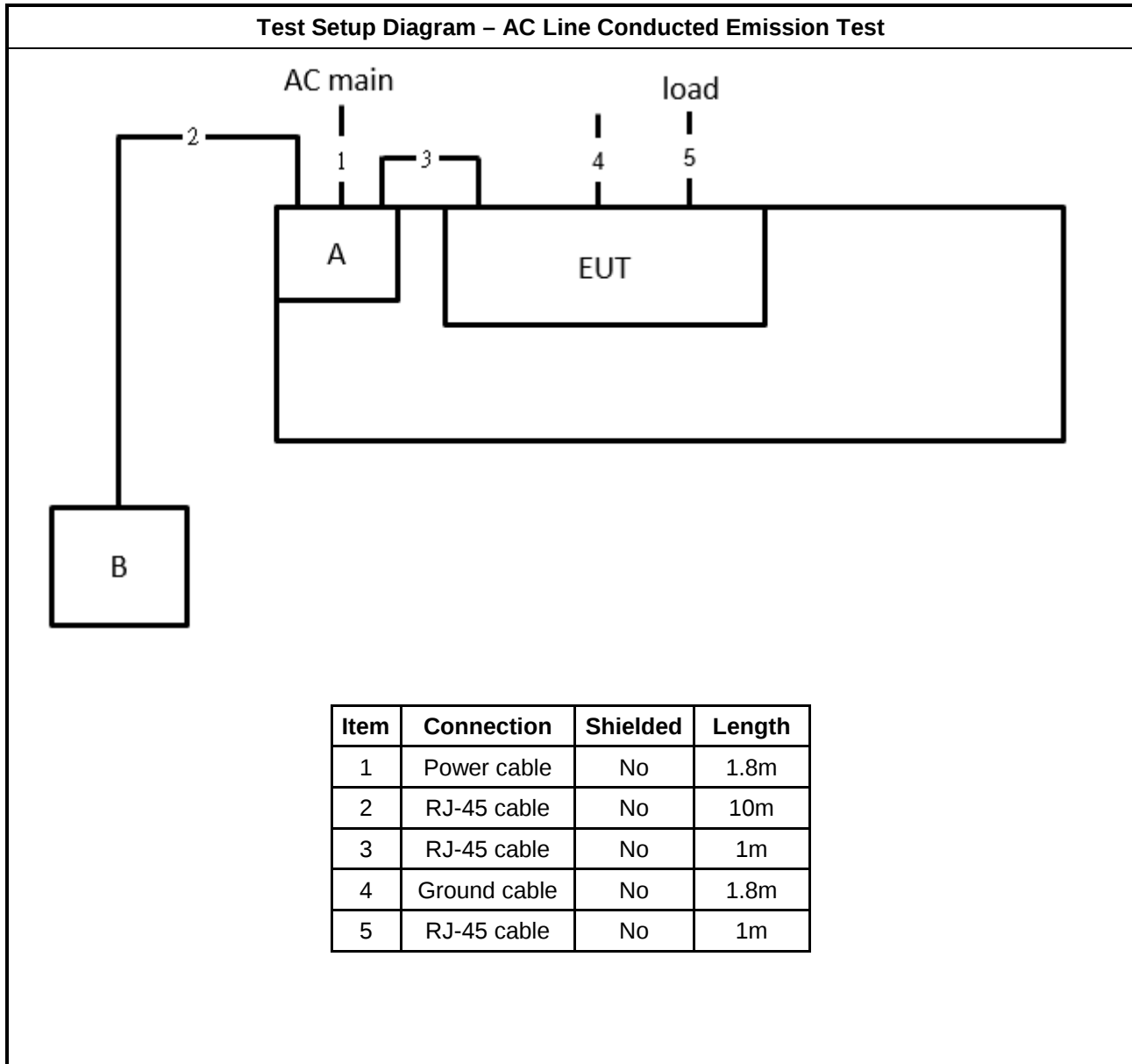
For beamforming mode

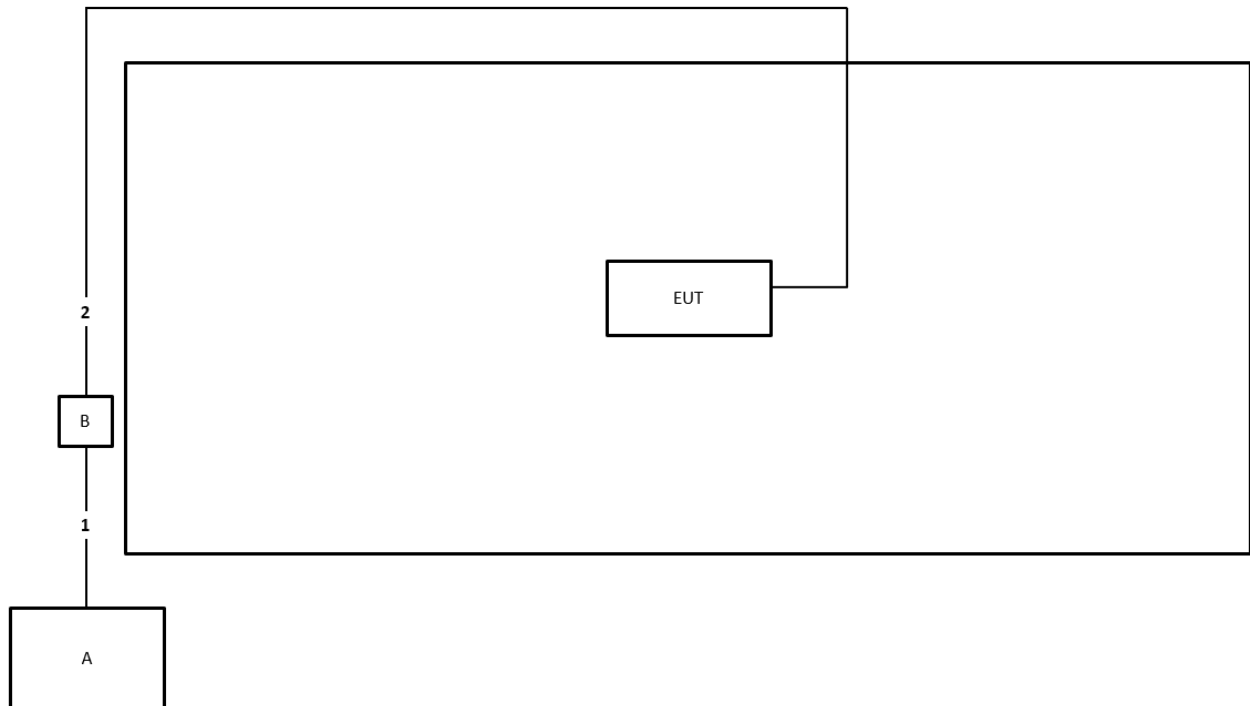
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	NB	DELL	E4300	N/A
B	PoE 2	Cambium	NET-P60-56IN	N/A
C	Client	Cambium Networks	CB-EX3-4TN	N/A
D	NB	DELL	E4300	N/A

For RF Conducted:

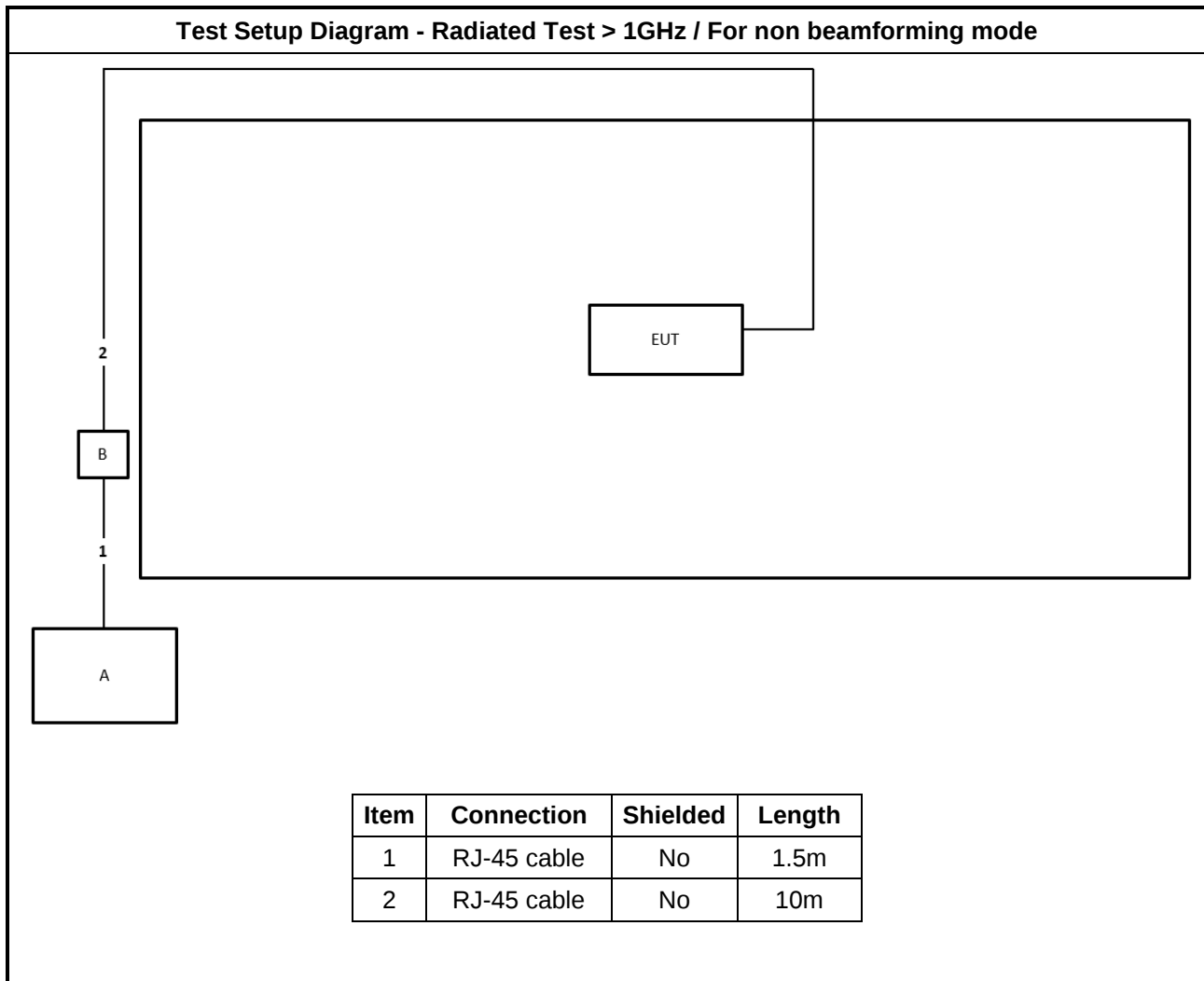
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	NB	DELL	E4300	N/A
B	PoE 2	Cambium	NET-P60-56IN	N/A

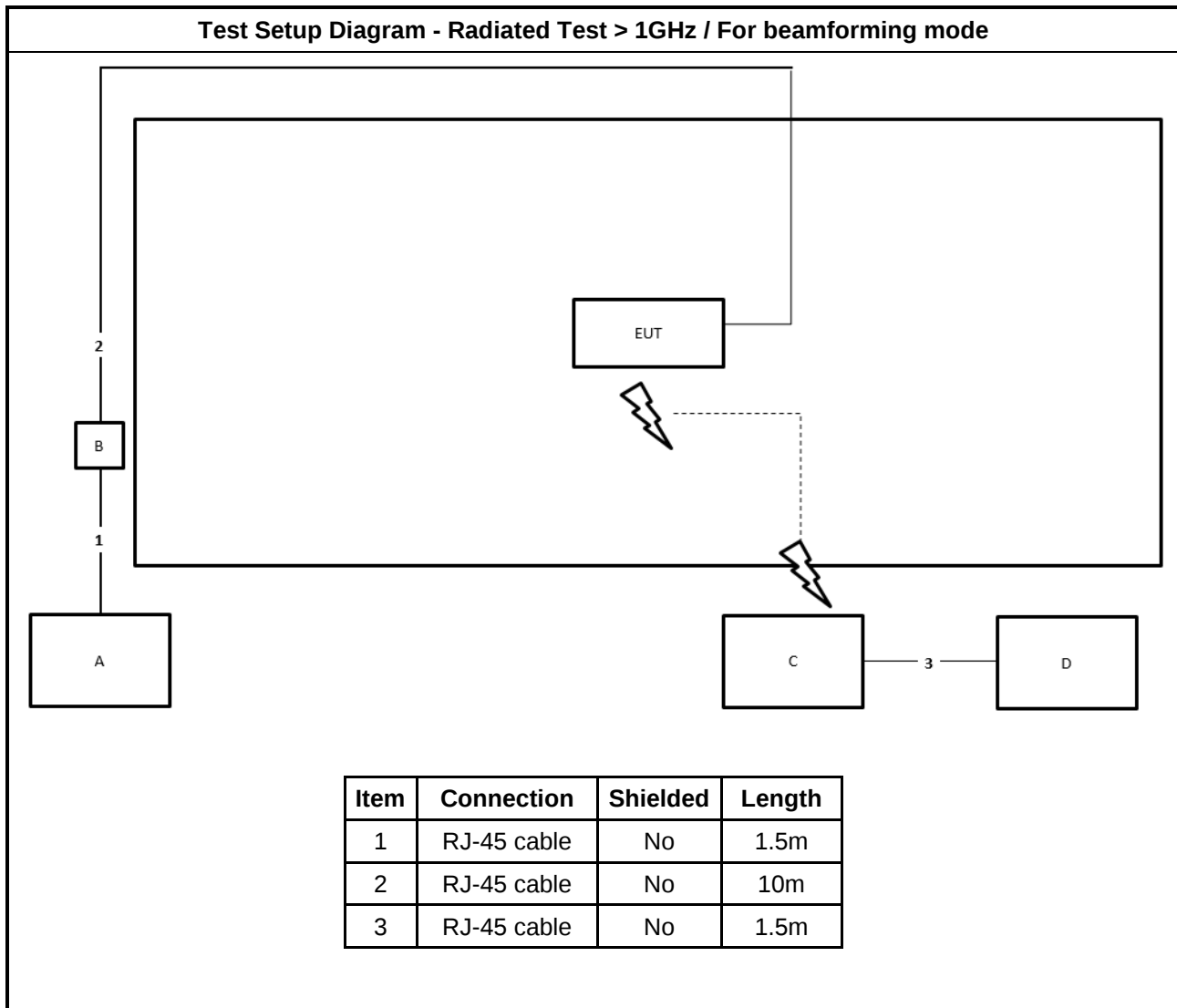
2.6 Test Setup Diagram



Test Setup Diagram - Radiated Test < 1GHz


Item	Connection	Shielded	Length
1	RJ-45 cable	No	1.5m
2	RJ-45 cable	No	10m

Test Setup Diagram - Radiated Test > 1GHz / For non beamforming mode


Test Setup Diagram - Radiated Test > 1GHz / For beamforming mode




3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

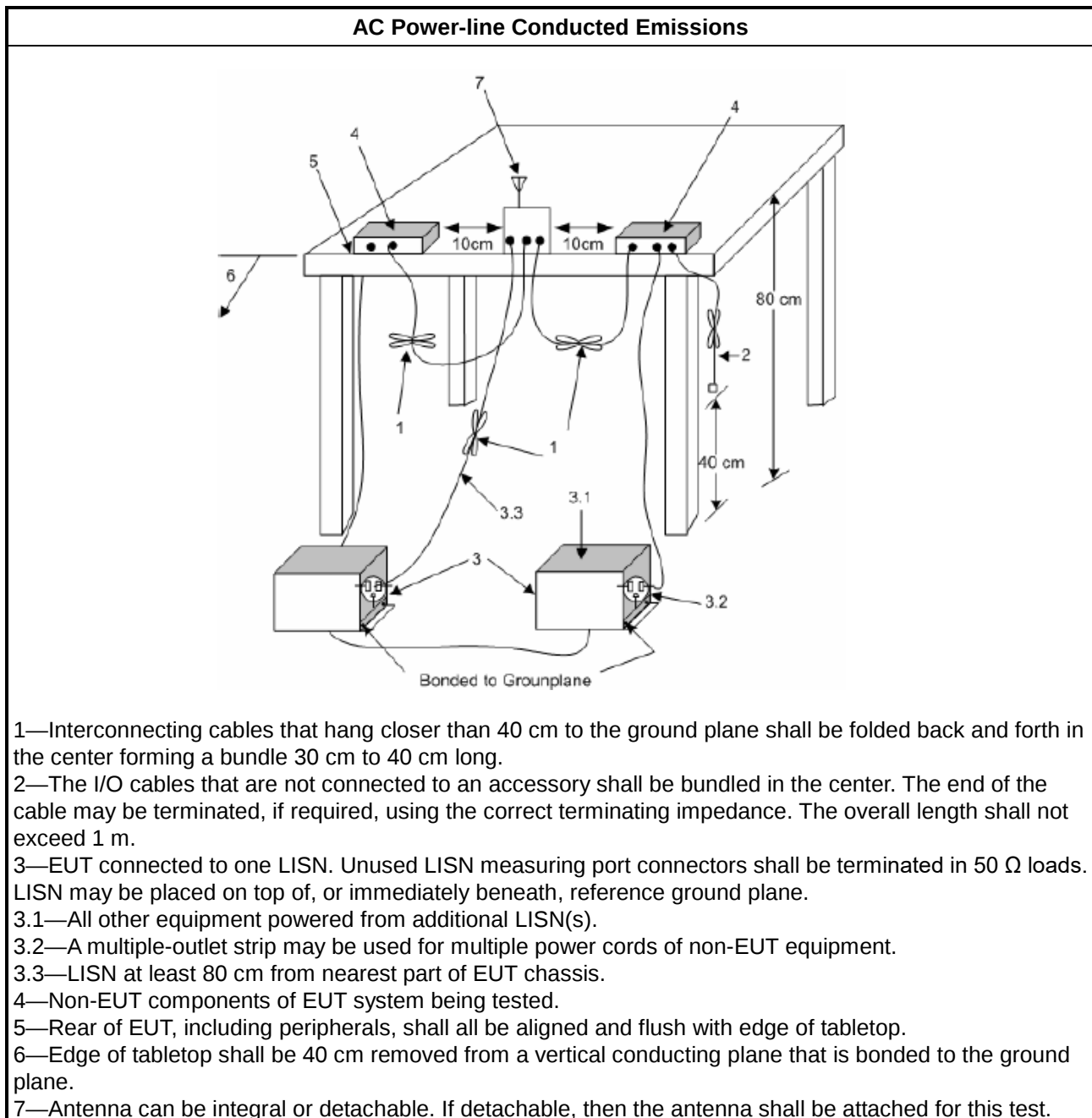
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method
☒ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup



3.1.5 Measurement Results Calculation

The measured Level is calculated using:

- a. Corrected Reading: LISN Factor (LISN) + Attenuator (AT/AUX) + Cable Loss (CL) + Read Level (Raw) = Level
- b. Margin = -Limit + Level

3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

Emission Bandwidth Limit	
UNII Devices	
☒	For the 5.15-5.25 GHz band, N/A
☐	For the 5.25-5.35 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz.
☐	For the 5.47-5.725 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz.
☒	For the 5.725-5.85 GHz band, 26 dB emission bandwidth ,N/A. 6 dB emission bandwidth $\geq 500\text{kHz}$.
LE-LAN Devices	
☐	For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
☐	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
☐	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
☐	For the 5.725-5.85 GHz band, 6 dB emission bandwidth $\geq 500\text{kHz}$.

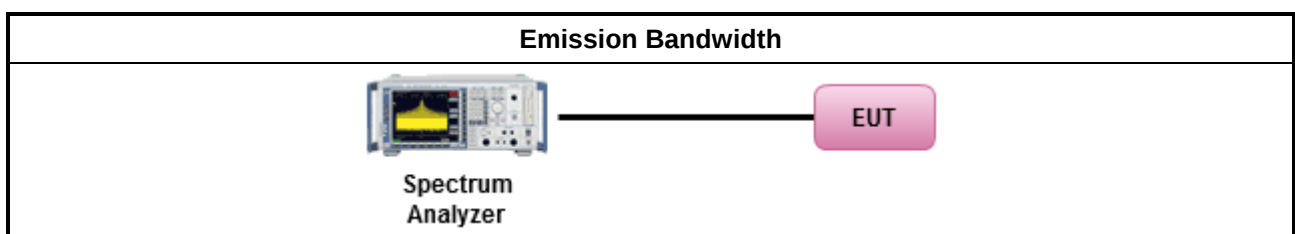
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method	
For the emission bandwidth shall be measured using one of the options below:	
☒	Refer as FCC KDB 789033 D02, clause C for EBW and clause D for OBW measurement.
☐	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
☐	Refer as IC RSS-Gen, clause 4.6 for bandwidth testing.

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B



3.3 Maximum Output Power

3.3.1 Limit

Maximum Output Power Limit	
UNII Devices	
☒ For the 5.15-5.25 GHz band:	
☐	- Outdoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. e.i.r.p. at any elevation angle above 30 degrees ≤ 125mW [21dBm] - Indoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ - Point-to-point AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 23$ dBi, then $P_{Out} = 30 - (G_{TX} - 23)$. - Mobile or Portable Client: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
☐	For the 5.25-5.35 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
☐	For the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
☒ For the 5.725-5.85 GHz band:	
☐	- Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. - Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.
LE-LAN Devices	
☐	For the 5.15-5.25 GHz band, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
☐	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
☐	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
☐ For the 5.725-5.85 GHz band:	
☐	- Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. - Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.
P_{Out} = maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	

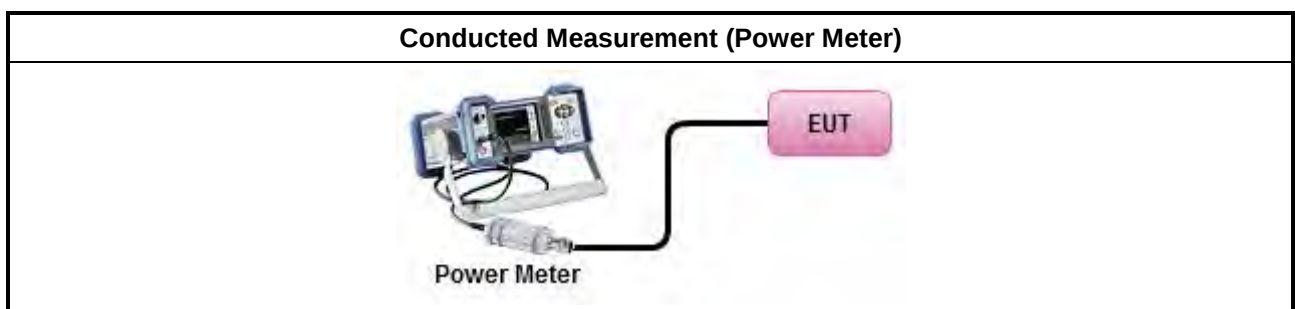
3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

Test Method	
	Average over on/off periods with duty factor
☐	Refer as FCC KDB 789033 D02, clause E Method SA-2 (spectral trace averaging).
☐	Refer as FCC KDB 789033 D02, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
	Wideband RF power meter and average over on/off periods with duty factor
☒	Refer as FCC KDB 789033 D02, clause E Method PM-G (using an RF average power meter).
☒	For conducted measurement.
	If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.
	If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$
☐	For radiated measurement.
	- Refer as FCC KDB 789033 D02 clause II A.1.F "Antenna-port Conducted versus Radiated Testing" - Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz. - Refer as FCC KDB 412172 D01 clause 2.2 for EIRP calculation.

3.3.4 Test Setup



3.3.5 Test Result of Maximum Output Power

Refer as Appendix C



3.4 Power Spectral Density

3.4.1 Limit

Peak Power Spectral Density Limit	
UNII Devices	
☒ For the 5.15-5.25 GHz band:	
	- Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$. - Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$. - Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 23$ dBi, then $P_{Out} = 17 - (G_{TX} - 23)$. - Mobile or Portable Client: the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$.
☐ For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$.	
☐ For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$.	
☒ For the 5.725-5.85 GHz band:	
	- Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then $PPSD = 30 - (G_{TX} - 6)$. - Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.
LE-LAN Devices	
☐ For the 5.15-5.25 GHz band, the e.i.r.p. peak power spectral density (PPSD) ≤ 10 dBm/MHz.	
☐ For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz.	
	e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where θ is the angle above the local horizontal plane (of the Earth) as shown below: -13 dBW/MHz for $0^\circ \leq \theta < 8^\circ$; -13 - 0.716 ($\theta$-8) dBW/MHz for $8^\circ \leq \theta < 40^\circ$ -35.9 - 1.22 (θ-40) dBW/MHz for $40^\circ \leq \theta \leq 45^\circ$; -42 dBW/MHz for $\theta > 45^\circ$
☐ For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz.	
☐ For the 5.725-5.85 GHz band:	
	- Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then $PPSD = 30 - (G_{TX} - 6)$. - Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.
PPSD = peak power spectral density that the same method as used to determine the conducted output power shall be used to determine the power spectral density. And power spectral density in dBm/MHz G_{TX} = the maximum transmitting antenna directional gain in dBi.	

3.4.2 Measuring Instruments

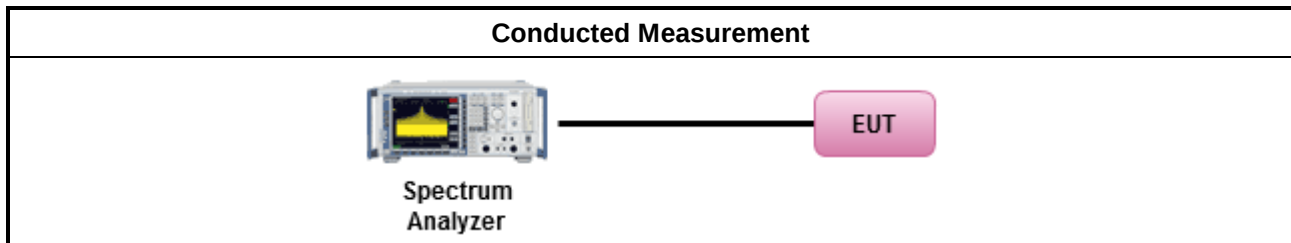
Refer a test equipment and calibration data table in this test report.

**3.4.3 Test Procedures**

Test Method	
Peak power spectral density procedures that the same method as used to determine the conducted output power shall be used to determine the peak power spectral density and use the peak search function on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density shall be measured using below options:	
☐	Refer as FCC KDB 789033 D02, F5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth
[duty cycle ≥ 98% or external video / power trigger]	
☒	Refer as FCC KDB 789033 D02, clause E Method SA-1 (spectral trace averaging).
☐	Refer as FCC KDB 789033 D02, clause E Method SA-1 Alt. (RMS detection with slow sweep speed)
duty cycle < 98% and average over on/off periods with duty factor	
☒	Refer as FCC KDB 789033 D02, clause E Method SA-2 (spectral trace averaging).
☐	Refer as FCC KDB 789033 D02, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
☒ For conducted measurement.	
If the EUT supports multiple transmit chains using options given below:	
☒	Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.
☐	Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,
☐	Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.
If multiple transmit chains, EIRP PPSD calculation could be following as methods: $PPSD_{total} = PPSD_1 + PPSD_2 + \dots + PPSD_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = PPSD_{total} + DG$	
☐ For radiated measurement.	
Refer as FCC KDB 789033 D02 clause II A.1.F "Antenna-port Conducted versus Radiated Testing"	
Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.	

Test Method	
	Refer as FCC KDB 412172 D01 clause 2.2 for EIRP calculation.

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D



3.5 Unwanted Emissions

3.5.1 Transmitter Unwanted Emissions Limit

Unwanted emissions below 1 GHz and restricted band emissions above 1GHz limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

Un-restricted band emissions above 1GHz Limit	
Operating Band	Limit
☒ 5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
☐ 5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
☐ 5.47 - 5.725 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
☒ 5.725 - 5.85 GHz	all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of



linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

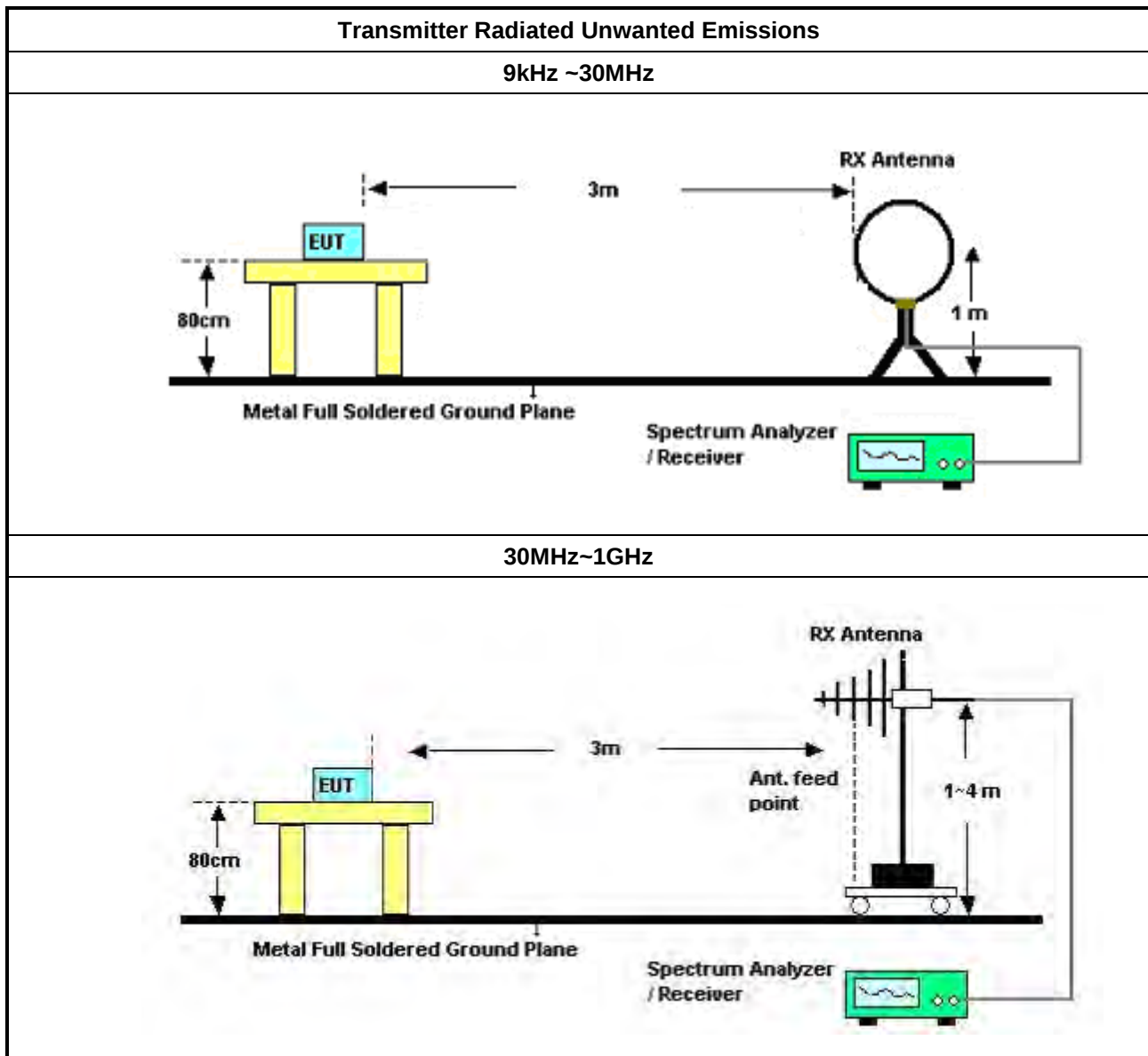
3.5.2 Measuring Instruments

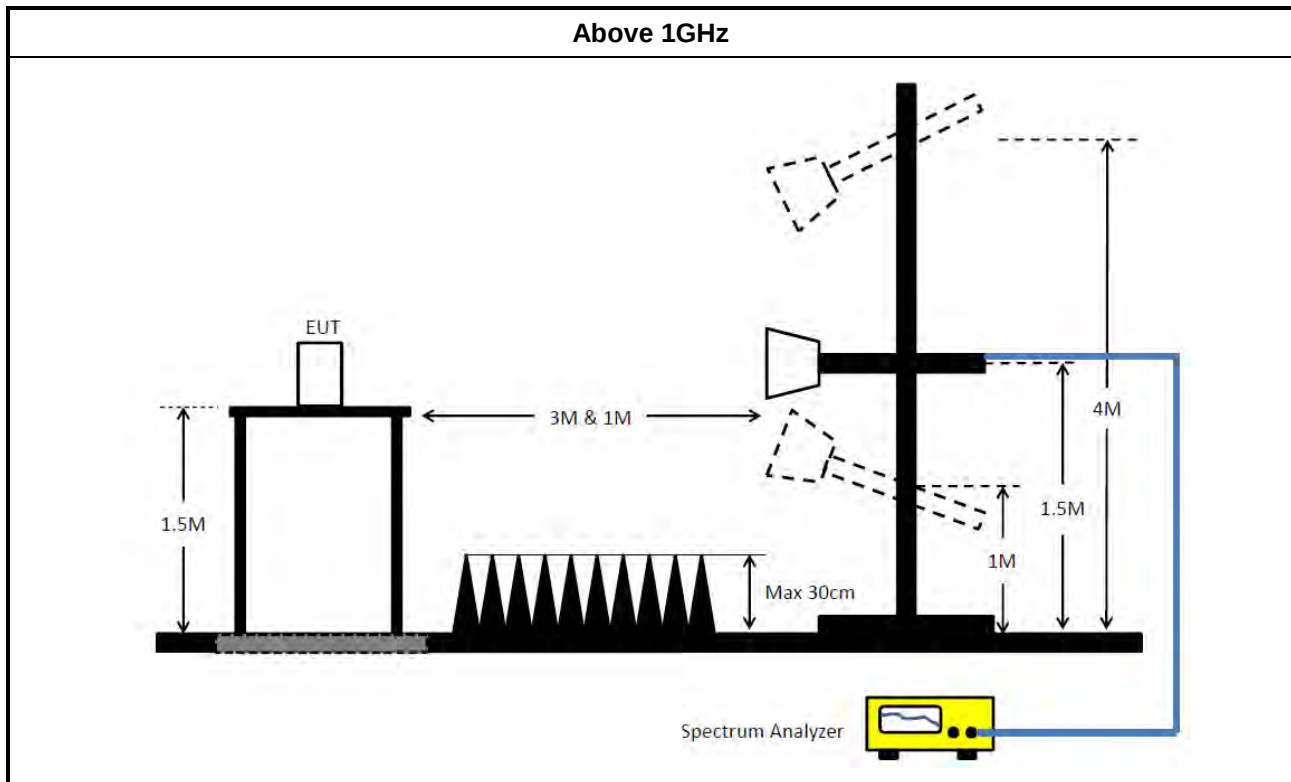
Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method	
Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).	
The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
For the transmitter unwanted emissions shall be measured using following options below:	
	Refer as FCC KDB 789033 D02, clause G)2) for unwanted emissions into non-restricted bands.
	Refer as FCC KDB 789033 D02, clause G)1) for unwanted emissions into restricted bands.
	☐ Refer as FCC KDB 789033 D02, G)6) Method AD (Trace Averaging).
	☒ Refer as FCC KDB 789033 D02, G)6) Method VB (Reduced VBW).
	☐ Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW $\geq$ 1/T, where T is pulse time.
	☐ Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
	☒ Refer as FCC KDB 789033 D02, clause G)5) measurement procedure peak limit.
☐ Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.	
For radiated measurement.	
	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.
The any unwanted emissions level shall not exceed the fundamental emission level.	
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.	

3.5.4 Test Setup





3.5.5 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Antenna factor (AF) + Cable loss (CL) + Read level (Raw) - Preamp factor (PA)(if applicable) = Level.

3.5.6 Transmitter Unwanted Emissions (Below 30MHz)

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

The radiated emissions were investigated from 9 kHz or the lowest frequency generated within the device, up to the 10th harmonic or 40 GHz, whichever is appropriate.

3.5.7 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E



4 Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Feb. 22, 2022	Feb. 21, 2023	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Feb. 09, 2022	Feb. 08, 2023	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Apr. 12, 2022	Apr. 11, 2023	Conduction (CO01-CB)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 10, 2022	Feb. 09, 2023	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	Oct. 18, 2022	Oct. 17, 2023	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	May 14, 2022	May 13, 2023	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30 MHz ~ 1 GHz	Aug. 09, 2021	Aug. 08, 2022	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30 MHz ~ 1 GHz	Aug. 03, 2022	Aug. 02, 2023	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH05-CB	1GHz ~18GHz 3m	Nov. 07, 2021	Nov. 06, 2022	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH05-CB	1GHz ~18GHz 3m	Nov. 06, 2022	Nov. 05, 2023	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 25, 2022	Mar. 24, 2023	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120 D-1291	1GHz~18GHz	Jun. 23, 2022	Jun. 22, 2023	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jul. 05, 2022	Jul. 04, 2023	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	Apr. 26, 2022	Apr. 25, 2023	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC12630SE	980287	1GHz ~ 26.5GHz	Jul. 01, 2022	Jun. 30, 2023	Radiation (03CH05-CB)
Pre-Amplifier	MITEQ	TTA1840-35-H G	1864479	18GHz ~ 40GHz	Jul. 20, 2022	Jul. 19, 2023	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Mar. 14, 2022	Mar. 13, 2023	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	Jun. 17, 2022	Jun. 16, 2023	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 13, 2021	Oct. 12, 2022	Radiation (03CH05-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-28	1GHz~18GHz	Oct. 13, 2021	Oct. 12, 2022	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-28	1GHz~18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+28	1GHz~18GHz	Oct. 13, 2021	Oct. 12, 2022	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+28	1GHz~18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#5+7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 08, 2021	Dec. 07, 2022	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH05-CB)
Horn Antenna	ETS-LINDGREN	3115	00075790	750MHz ~ 18GHz	Nov. 06, 2021	Nov. 05, 2022	Radiation (03CH01-CB)
Horn Antenna	ETS-LINDGREN	3115	00075790	750MHz ~ 18GHz	Nov. 04, 2022	Nov. 03, 2023	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jul. 05, 2022	Jul. 04, 2023	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02121	1GHz ~ 26.5GHz	May 19, 2022	May 18, 2023	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 20, 2022	Jul. 19, 2023	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	May 06, 2022	May 05, 2023	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16	1 GHz ~ 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16	1 GHz ~ 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16+17	1 GHz ~ 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16+17	1 GHz ~ 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#5+7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 08, 2021	Dec. 07, 2022	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH01-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH01-CB)
3m Semi Anechoic Chamber VSWR	RIKEN	SAC-3M	03CH02-CB	1GHz ~18GHz	Mar. 26, 2022	Mar. 25, 2023	Radiation (03CH02-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Horn Antenna	EMCO	3115	9610-4976	1GHz ~ 18GHz	Apr. 19, 2022	Apr. 18, 2023	Radiation (03CH02-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jul. 05, 2022	Jul. 04, 2023	Radiation (03CH02-CB)
Pre-Amplifier	Agilent	83017A	MY39501305	1GHz ~ 26.5GHz	Jul. 01, 2022	Jun. 30, 2023	Radiation (03CH02-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 20, 2022	Jul. 19, 2023	Radiation (03CH02-CB)
Spectrum analyzer	R&S	FSP	100593	9kHz~40GHz	Apr. 08, 2022	Apr. 07, 2023	Radiation (03CH02-CB)
RF Cable-high	Woken	RG402	High Cable-18	1GHz ~ 18GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH02-CB)
RF Cable-high	Woken	RG402	High Cable-18	1GHz ~ 18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH02-CB)
RF Cable-high	Woken	RG402	High Cable-18+19	1GHz ~ 18GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH02-CB)
RF Cable-high	Woken	RG402	High Cable-18+19	1GHz ~ 18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH02-CB)
High Cable	Woken	WCA0929M	40G#5+7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH02-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 08, 2021	Dec. 07, 2022	Radiation (03CH02-CB)
High Cable	Woken	WCA0929M	40G#7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH02-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH02-CB)
Spectrum analyzer	R&S	FSV40	101028	9kHz~40GHz	Jan. 07, 2022	Jan. 06, 2023	Conducted (TH03-CB)
Power Sensor	Anritsu	MA2411B	1531344	300MHz~40GHz	Jul. 31, 2022	Jul. 30, 2023	Conducted (TH03-CB)
Power Meter	Anritsu	ML2495A	1728002	300MHz~40GHz	Jul. 31, 2022	Jul. 30, 2023	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-11	1 GHz ~18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-11	1 GHz ~18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-12	1 GHz ~18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-12	1 GHz ~18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-13	1 GHz ~18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-13	1 GHz ~18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-14	1 GHz ~18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-14	1 GHz ~18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH03-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-15	1 GHz –18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-15	1 GHz –18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH03-CB)
Switch	SPTCB	SP-SWI	SWI-03	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P1	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P2	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P3	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P4	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P5	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH03-CB)

Note: Calibration Interval of instruments listed above is one year.

N.C.R. means Non-Calibration required.



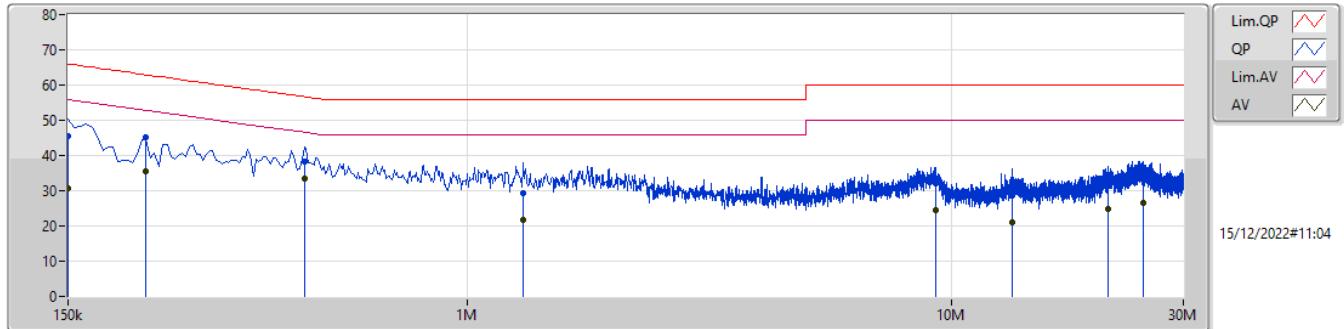
Conducted Emissions at Powerline

Appendix A

Summary

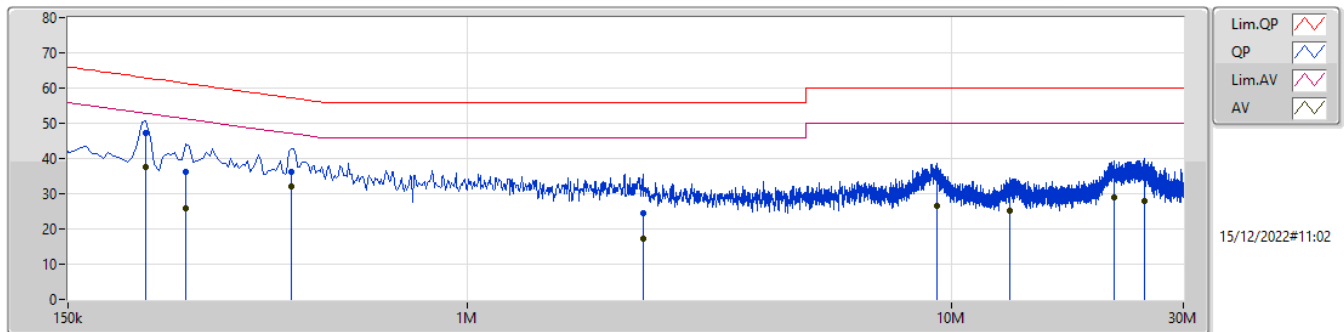
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	460.5k	33.54	46.69	-13.15	Line

Test Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	150k	45.61	66.00	-20.39	9.99	Line	-	35.62	0.06	0.04	9.89						
AV	150k	30.71	56.00	-25.29	9.99	Line	-	20.72	0.06	0.04	9.89						
QP	217.5k	45.34	62.92	-17.58	9.99	Line	-	35.35	0.06	0.04	9.89						
AV	217.5k	35.64	52.92	-17.28	9.99	Line	-	25.65	0.06	0.04	9.89						
QP	460.5k	38.34	56.69	-18.35	10.01	Line	-	28.33	0.06	0.06	9.89						
AV	460.5k	33.54	46.69	-13.15	10.01	Line	"Worst"	23.53	0.06	0.06	9.89						
QP	1.307M	29.15	56.00	-26.85	10.03	Line	-	19.12	0.08	0.06	9.89						
AV	1.307M	21.89	46.00	-24.11	10.03	Line	-	11.86	0.08	0.06	9.89						
QP	9.258M	32.22	60.00	-27.78	10.28	Line	-	21.94	0.21	0.16	9.91						
AV	9.258M	24.45	50.00	-25.55	10.28	Line	-	14.17	0.21	0.16	9.91						
QP	13.308M	28.59	60.00	-31.41	10.35	Line	-	18.24	0.25	0.17	9.93						
AV	13.308M	21.06	50.00	-28.94	10.35	Line	-	10.71	0.25	0.17	9.93						
QP	20.976M	31.35	60.00	-28.65	10.50	Line	-	20.85	0.31	0.23	9.96						
AV	20.976M	24.79	50.00	-25.21	10.50	Line	-	14.29	0.31	0.23	9.96						
QP	24.833M	33.27	60.00	-26.73	10.60	Line	-	22.67	0.35	0.28	9.97						
AV	24.833M	26.42	50.00	-23.58	10.60	Line	-	15.82	0.35	0.28	9.97						

Test Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	217.5k	47.41	62.92	-15.51	10.00	Neutral	-	37.41	0.07	0.04	9.89						
AV	217.5k	37.73	52.92	-15.19	10.00	Neutral	"Worst"	27.73	0.07	0.04	9.89						
QP	262.5k	36.24	61.35	-25.11	10.01	Neutral	-	26.23	0.07	0.05	9.89						
AV	262.5k	26.03	51.35	-25.32	10.01	Neutral	-	16.02	0.07	0.05	9.89						
QP	433.5k	36.12	57.19	-21.07	10.02	Neutral	-	26.10	0.07	0.06	9.89						
AV	433.5k	31.95	47.19	-15.24	10.02	Neutral	-	21.93	0.07	0.06	9.89						
QP	2.301M	24.37	56.00	-31.63	10.09	Neutral	-	14.28	0.11	0.09	9.89						
AV	2.301M	17.13	46.00	-28.87	10.09	Neutral	-	7.04	0.11	0.09	9.89						
QP	9.303M	34.64	60.00	-25.36	10.30	Neutral	-	24.34	0.23	0.16	9.91						
AV	9.303M	26.69	50.00	-23.31	10.30	Neutral	-	16.39	0.23	0.16	9.91						
QP	13.164M	31.91	60.00	-28.09	10.36	Neutral	-	21.55	0.26	0.17	9.93						
AV	13.164M	25.15	50.00	-24.85	10.36	Neutral	-	14.79	0.26	0.17	9.93						
QP	21.62M	35.24	60.00	-24.76	10.50	Neutral	-	24.74	0.30	0.24	9.96						
AV	21.62M	28.94	50.00	-21.06	10.50	Neutral	-	18.44	0.30	0.24	9.96						
QP	24.887M	34.58	60.00	-25.42	10.56	Neutral	-	24.02	0.31	0.28	9.97						
AV	24.887M	28.04	50.00	-21.96	10.56	Neutral	-	17.48	0.31	0.28	9.97						



EBW_R2 + Antenna set 1 for UNII 1 + Antenna set 2 for UNII 3
Non beamforming mode

Appendix B.1

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	22.83M	16.566M	16M6D1D	20.64M	16.444M
802.11ax HEW20_Nss1,(MCS0)_2TX	25.26M	19.051M	19M1D1D	21.57M	18.924M
802.11ax HEW40_Nss1,(MCS0)_2TX	41.76M	38.015M	38M0D1D	41.04M	37.87M
802.11ax HEW80_Nss1,(MCS0)_2TX	82.56M	77.34M	77M3D1D	82.32M	77.263M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	16.32M	34.064M	34M1D1D	15.66M	25.938M
802.11ax HEW20_Nss1,(MCS0)_2TX	18.96M	33.314M	33M3D1D	17.73M	19.743M
802.11ax HEW40_Nss1,(MCS0)_2TX	37.98M	46.85M	46M8D1D	37.32M	38.895M
802.11ax HEW80_Nss1,(MCS0)_2TX	76.2M	77.49M	77M5D1D	71.76M	77.367M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Min-OBW = Minimum 99% occupied bandwidth

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	20.64M	16.468M	20.73M	16.444M
5200MHz	Pass	Inf	21.18M	16.518M	21.84M	16.522M
5240MHz	Pass	Inf	21.09M	16.513M	22.83M	16.566M
5745MHz	Pass	500k	15.9M	26.4M	16.32M	29.44M
5785MHz	Pass	500k	15.87M	34.064M	15.69M	28.943M
5825MHz	Pass	500k	16.26M	32.177M	15.66M	25.938M
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	21.9M	18.924M	21.57M	18.958M
5200MHz	Pass	Inf	24.42M	19.023M	25.26M	19.051M
5240MHz	Pass	Inf	22.8M	18.979M	22.23M	18.962M
5745MHz	Pass	500k	18.6M	25.643M	17.73M	25.678M
5785MHz	Pass	500k	18.96M	33.314M	18.66M	22.05M
5825MHz	Pass	500k	18.48M	29.795M	18.12M	19.743M
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	41.04M	37.953M	41.04M	37.87M
5230MHz	Pass	Inf	41.28M	38.015M	41.76M	37.995M
5755MHz	Pass	500k	37.98M	42.613M	37.32M	39.895M
5795MHz	Pass	500k	37.98M	46.85M	37.8M	38.895M
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	82.32M	77.34M	82.56M	77.263M
5775MHz	Pass	500k	76.2M	77.49M	71.76M	77.367M

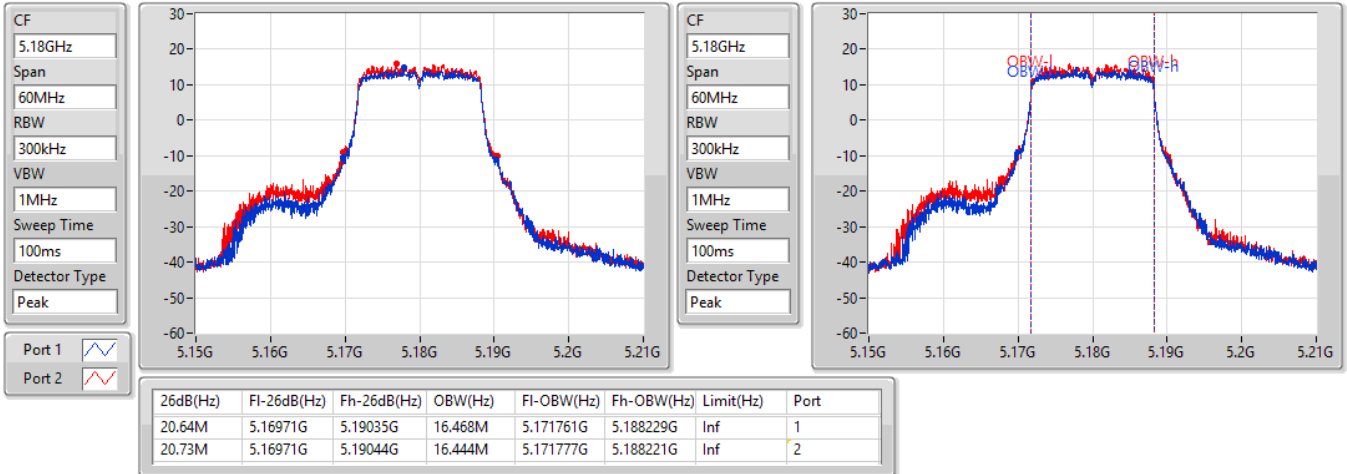
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port X 99% occupied bandwidth

802.11a_Nss1,(6Mbps)_2TX

EBW

5180MHz

05/08/2022

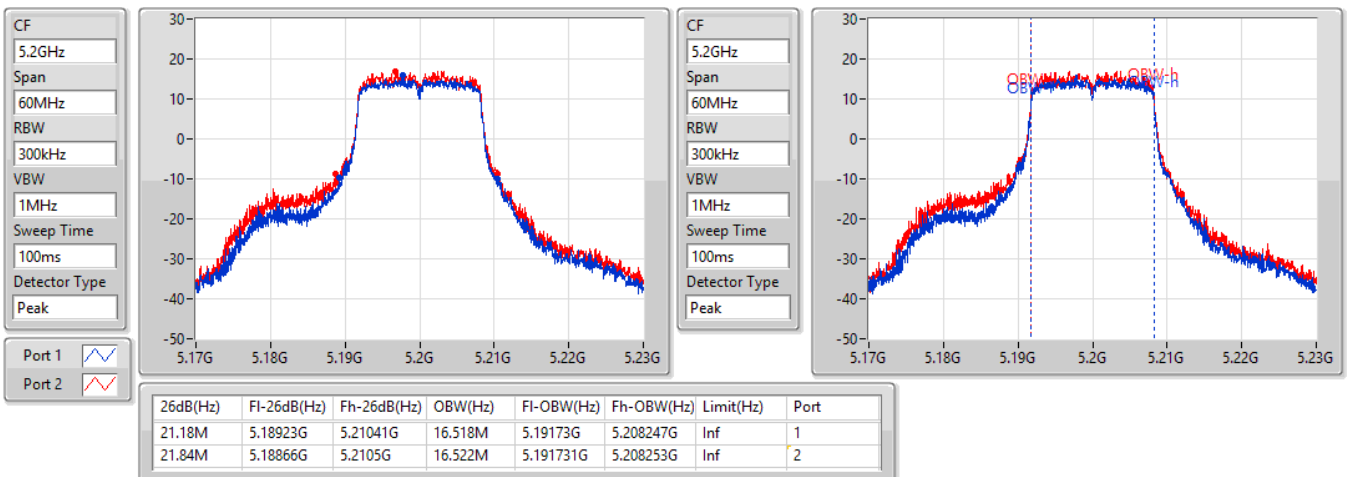


802.11a_Nss1,(6Mbps)_2TX

EBW

5200MHz

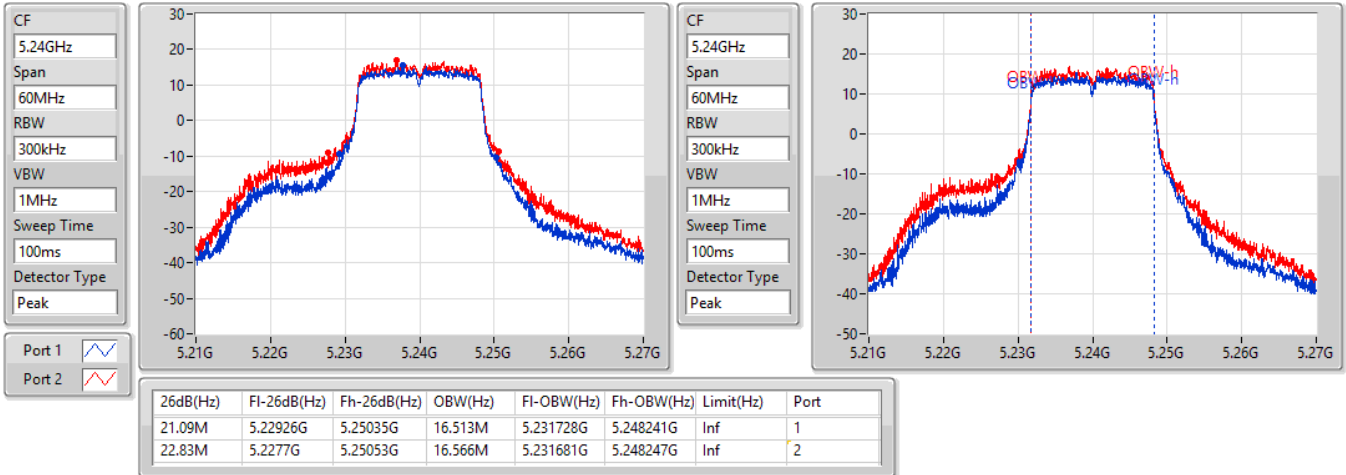
05/08/2022



802.11a_Nss1,(6Mbps)_2TX

5240MHz

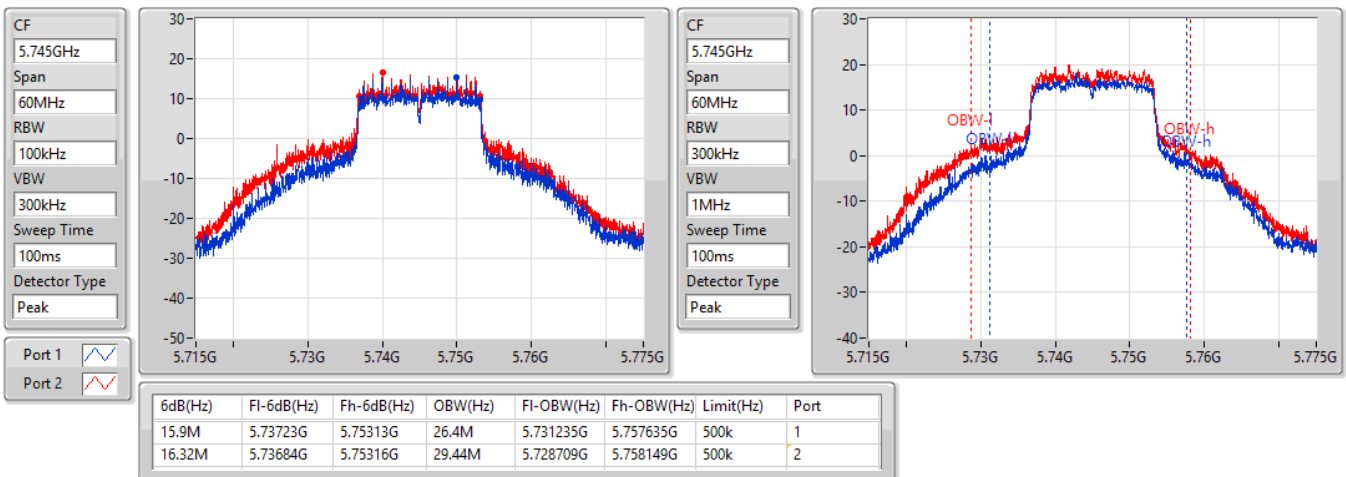
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802.11a_Nss1,(6Mbps)_2TX

5745MHz

05/08/2022

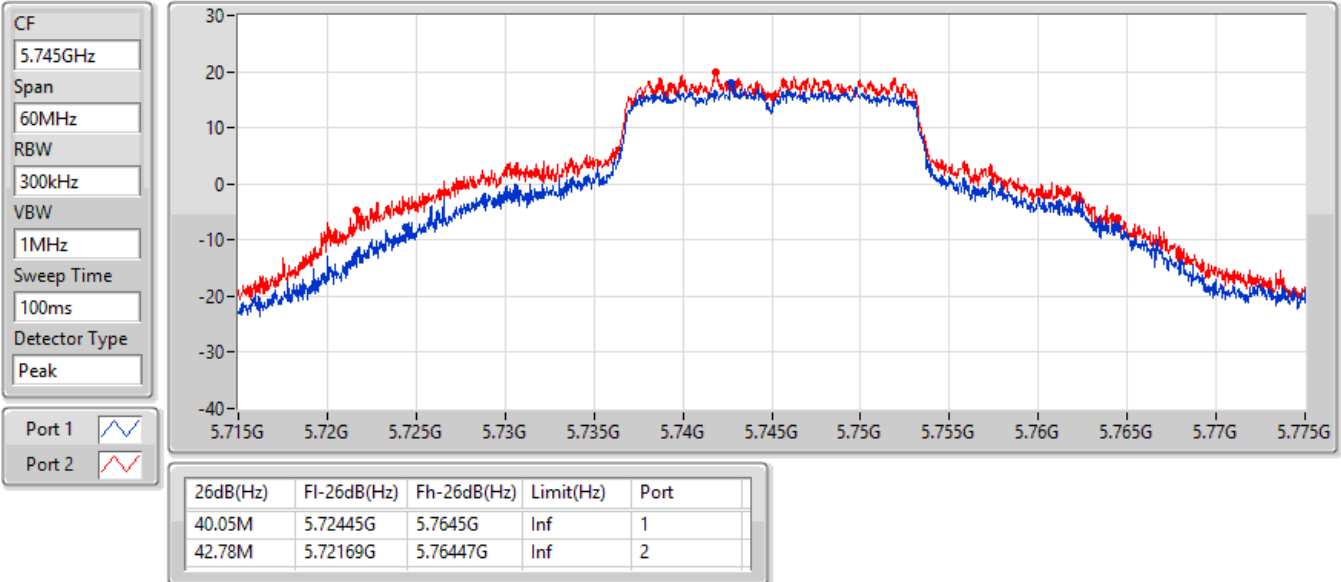


802.11a_Nss1,(6Mbps)_2TX

EBW

5745MHz

05/08/2022

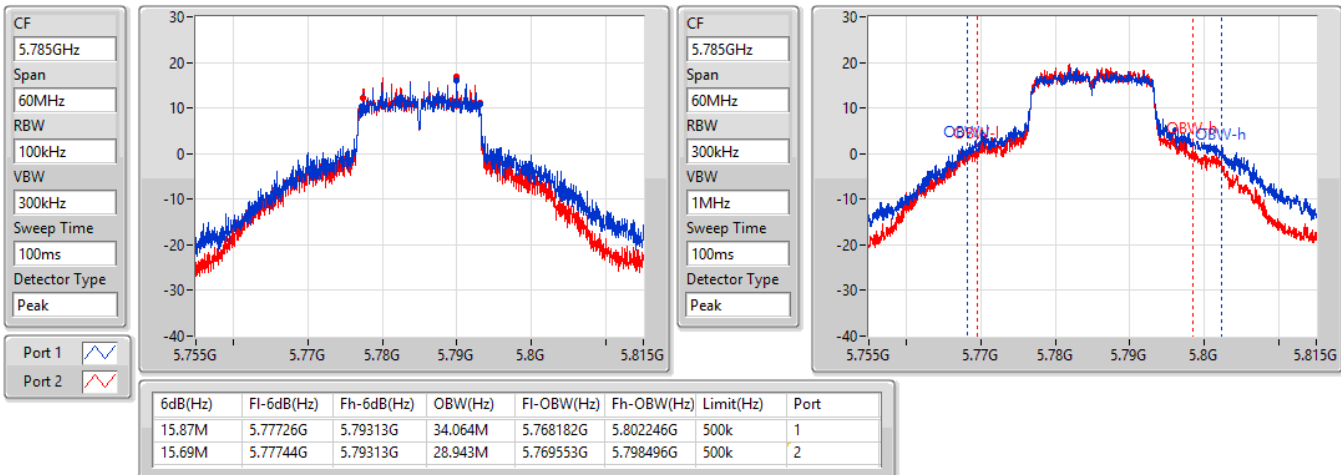


802.11a_Nss1,(6Mbps)_2TX

EBW

5785MHz

05/08/2022

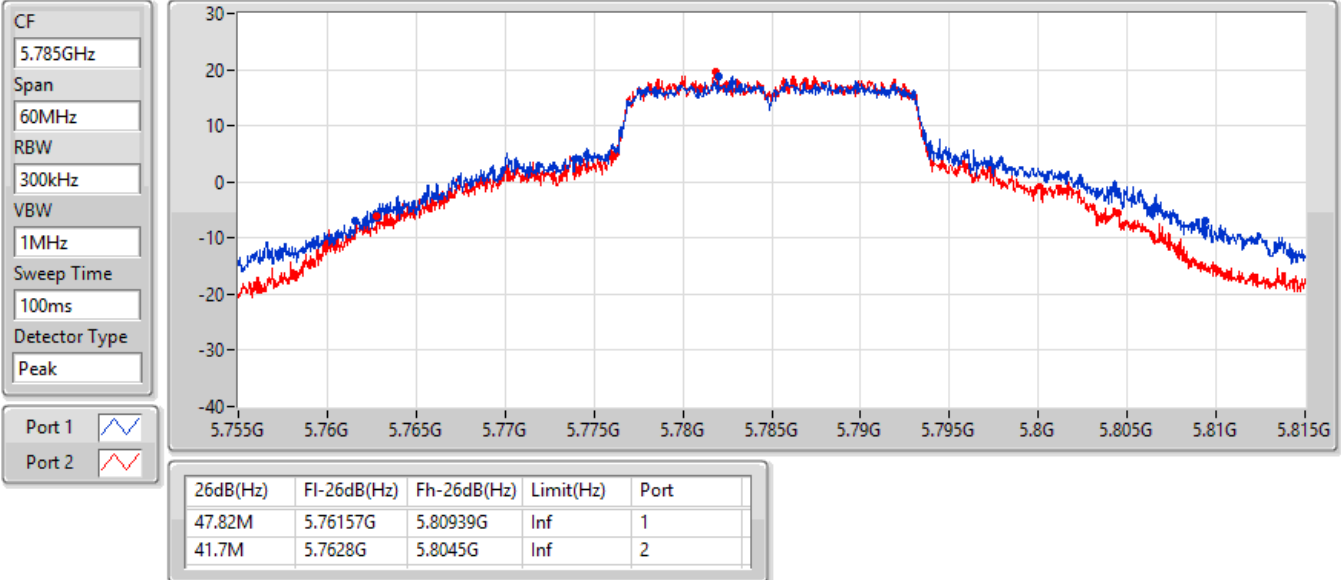


802.11a_Nss1,(6Mbps)_2TX

EBW

5785MHz

05/08/2022

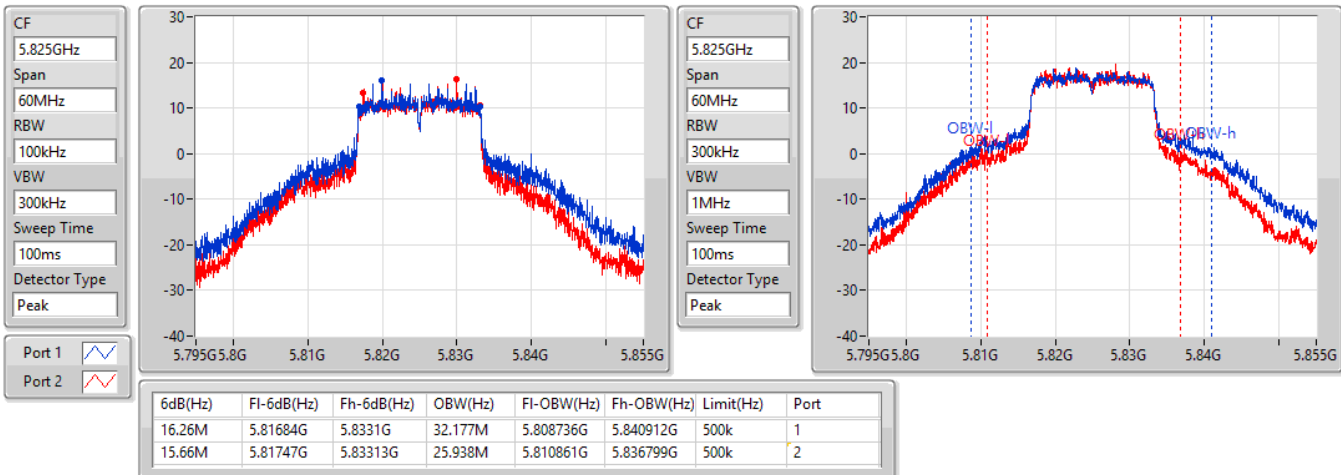


802.11a_Nss1,(6Mbps)_2TX

EBW

5825MHz

05/08/2022

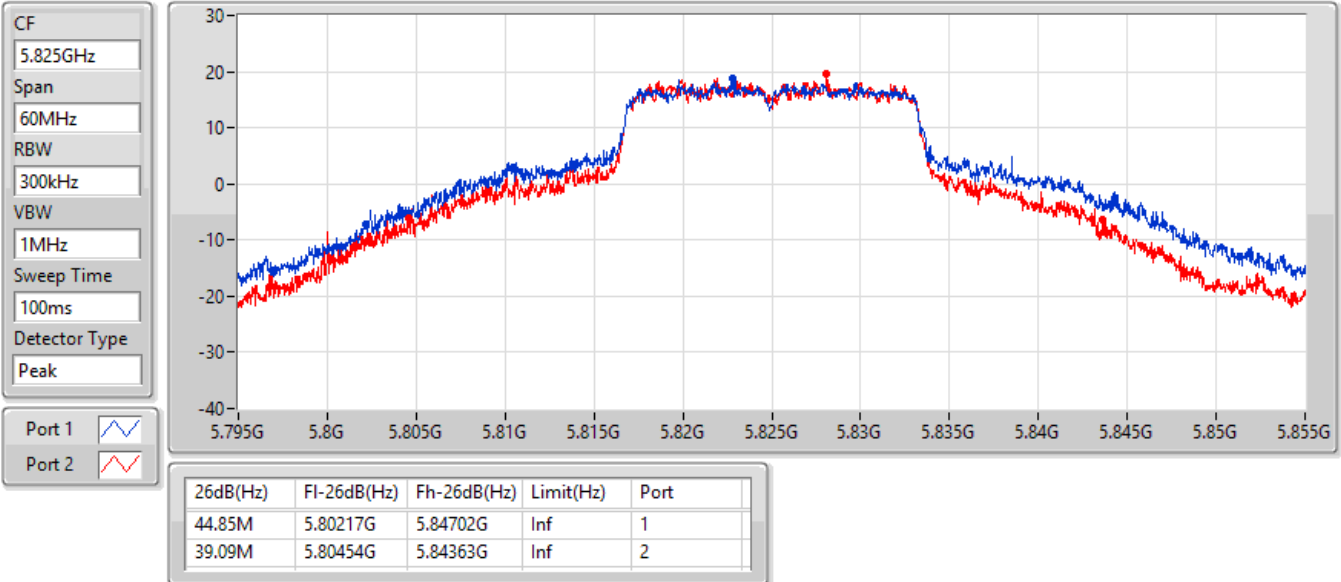


802.11a_Nss1,(6Mbps)_2TX

EBW

5825MHz

05/08/2022

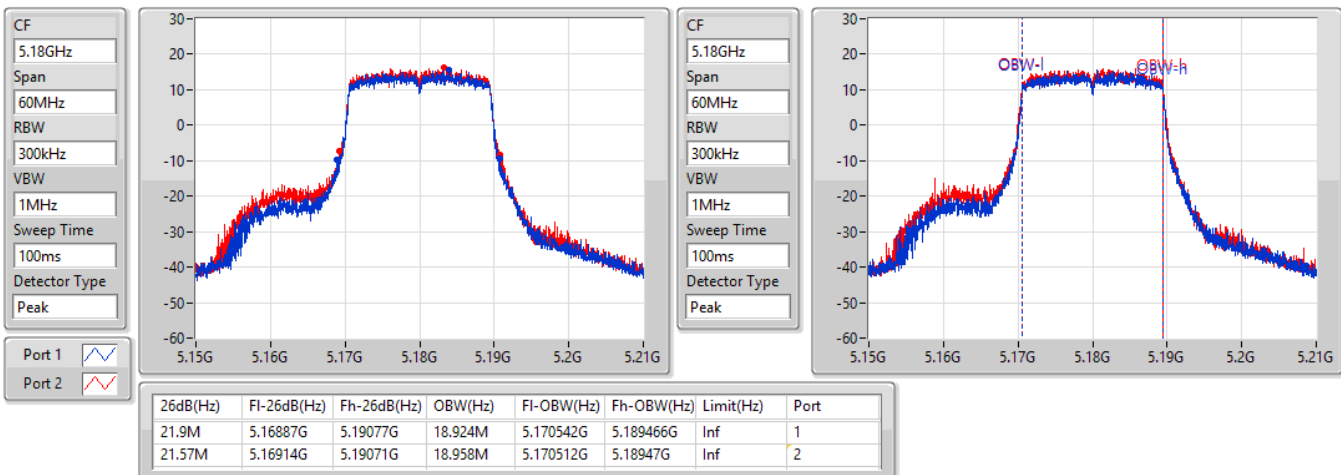


802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

5180MHz

05/08/2022

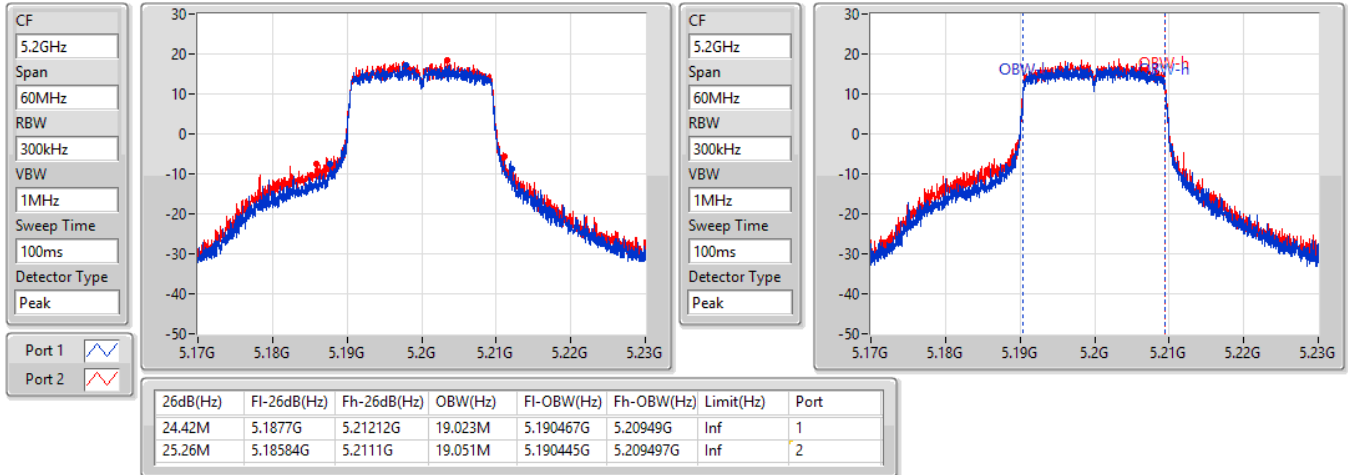


802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

5200MHz

05/08/2022

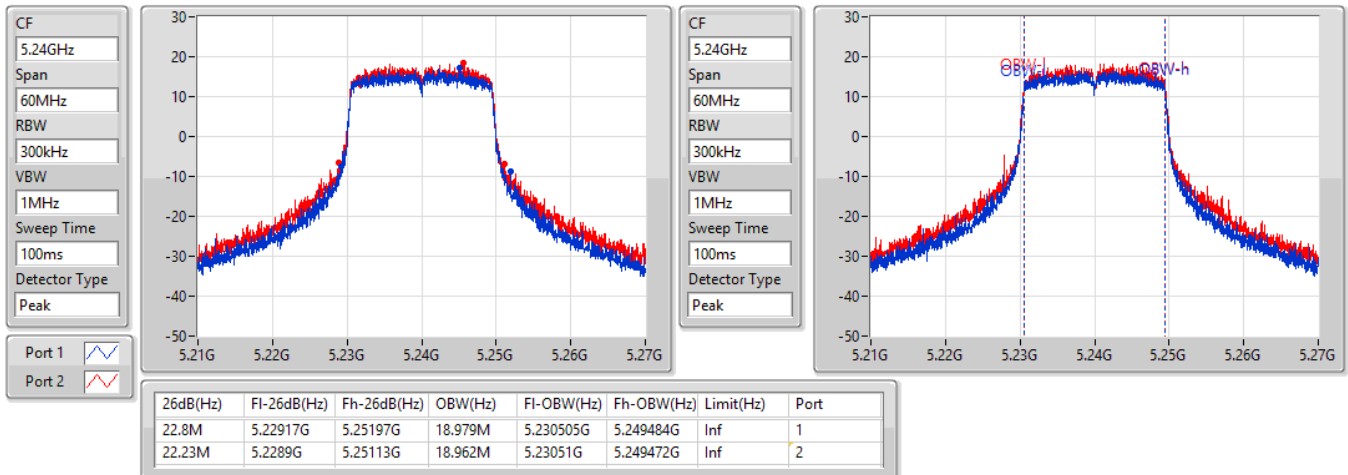


802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

5240MHz

05/08/2022

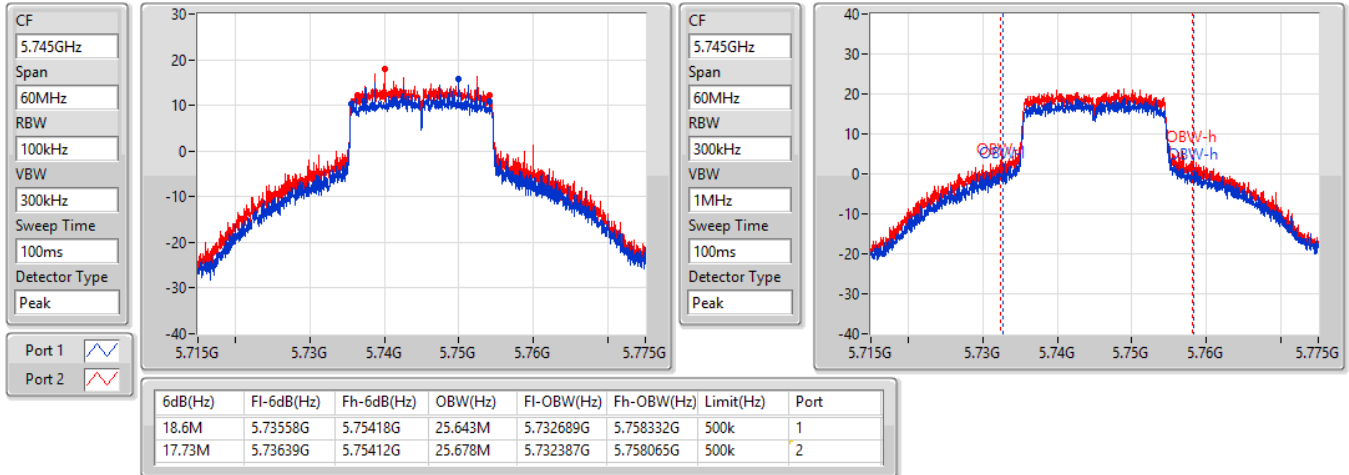


802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

5745MHz

05/08/2022

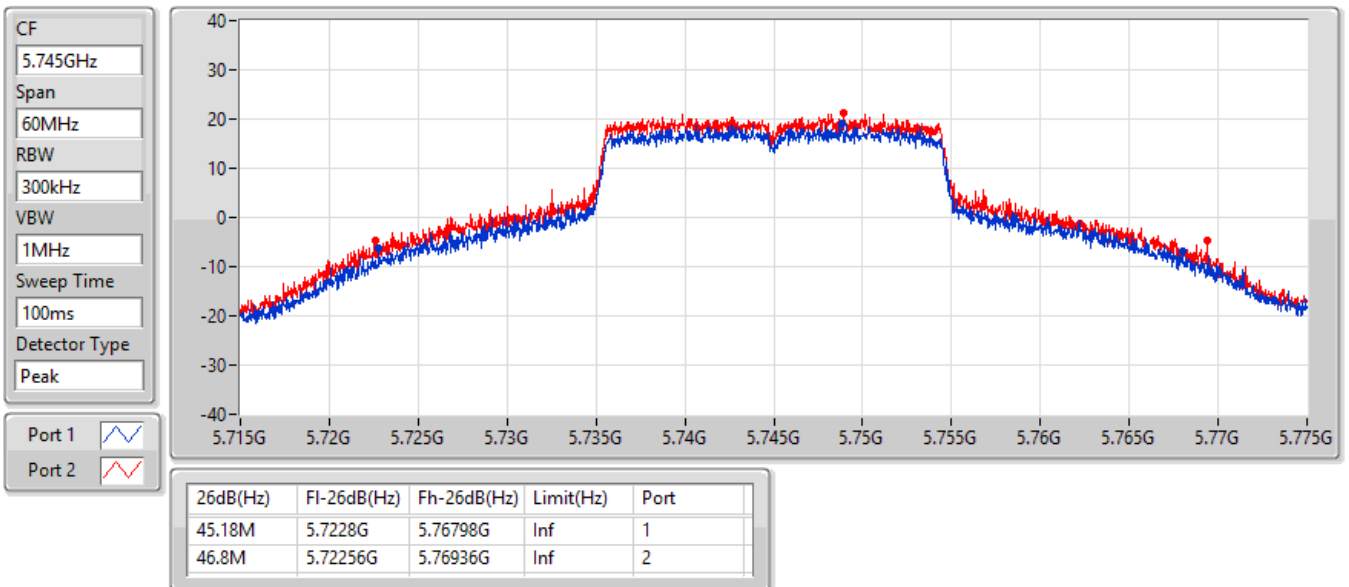


802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

5745MHz

05/08/2022

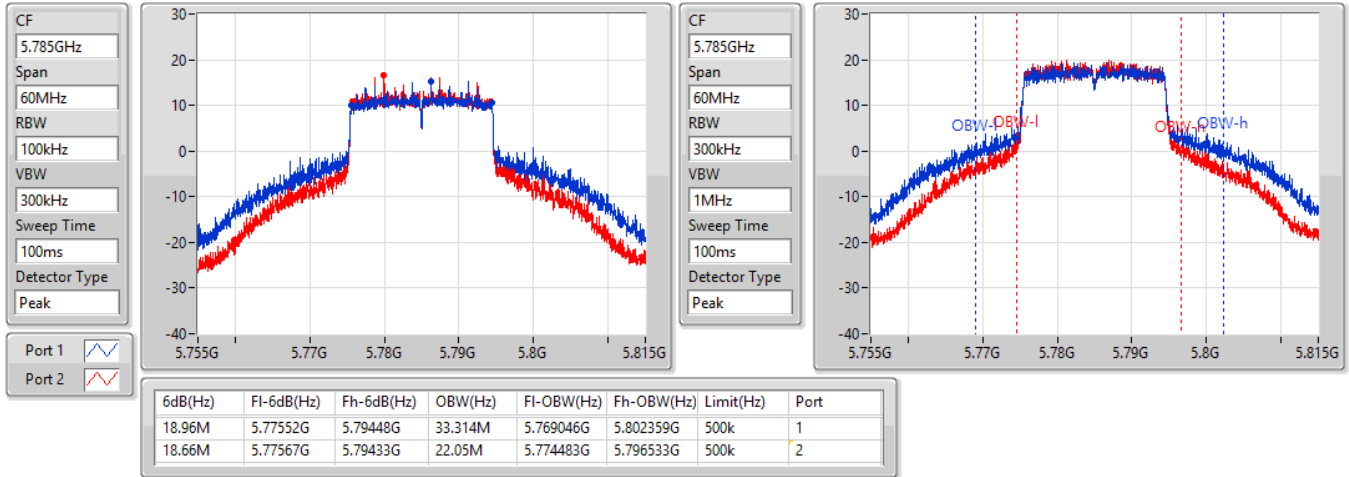


802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

5785MHz

05/08/2022

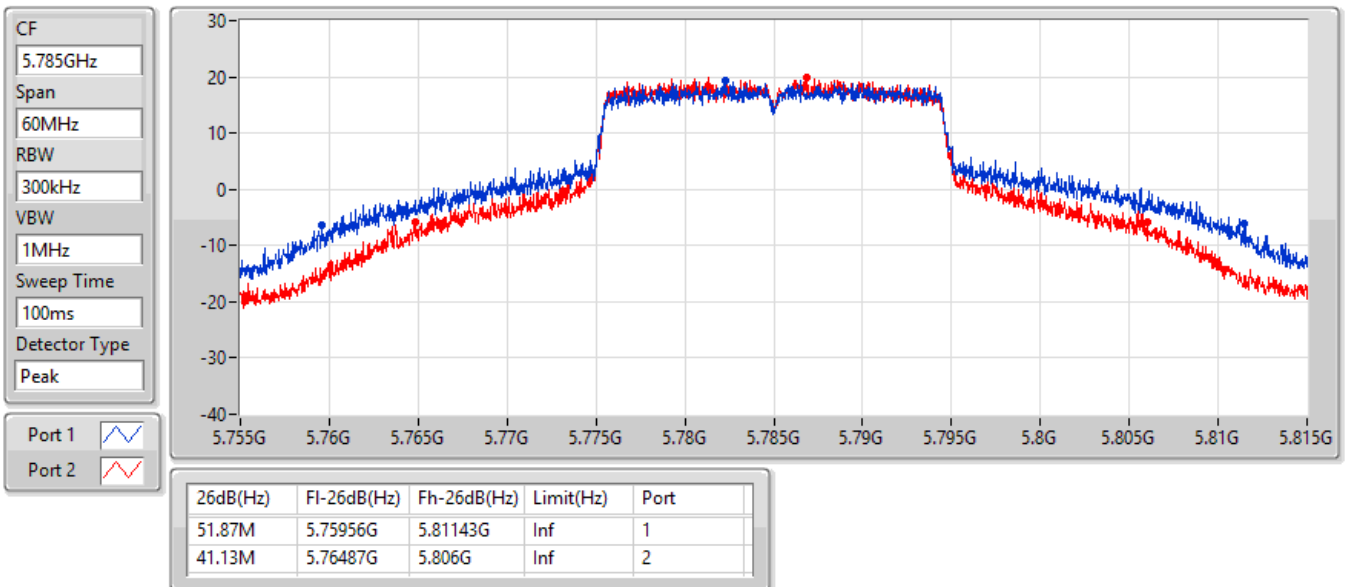


802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

5785MHz

05/08/2022

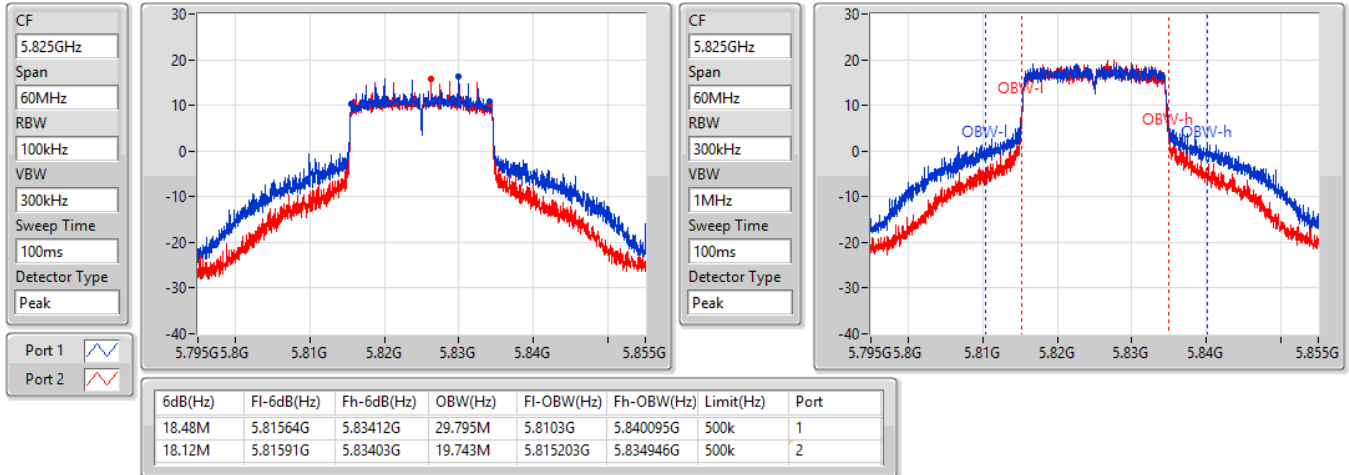


802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

5825MHz

05/08/2022

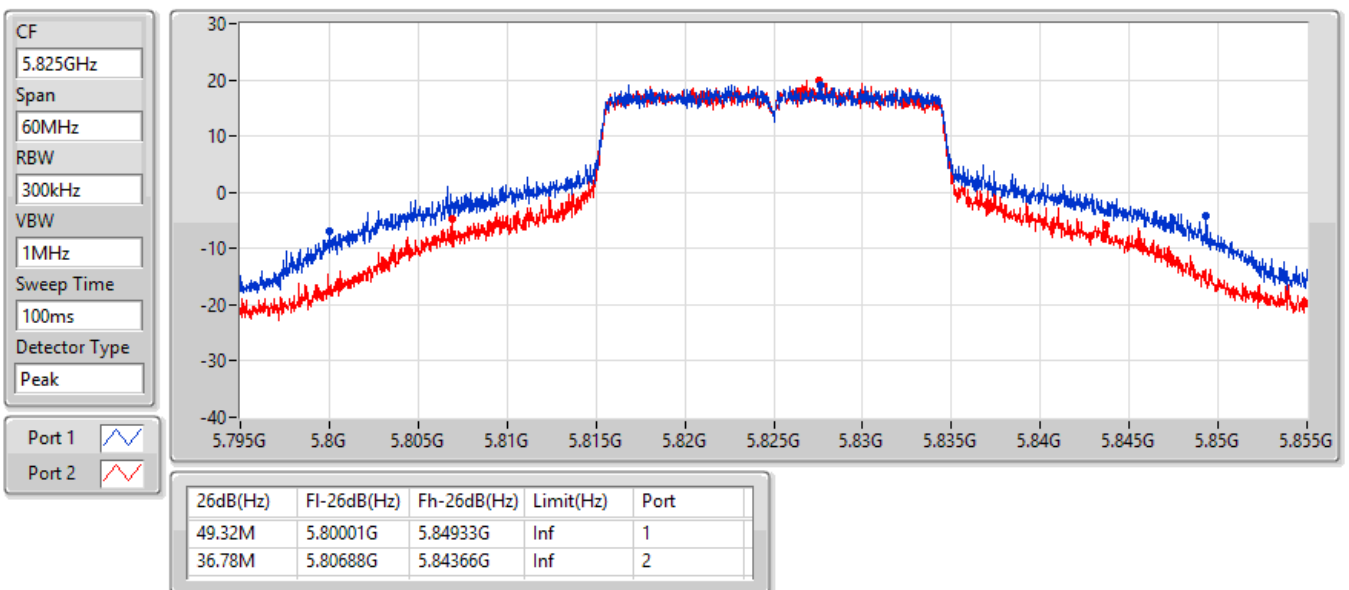


802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

5825MHz

05/08/2022

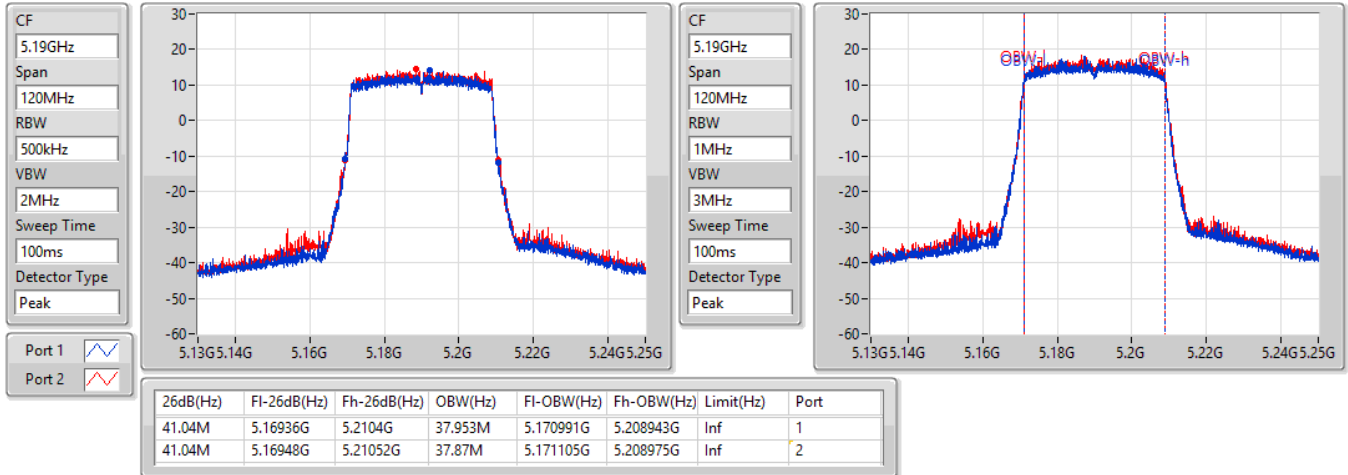


802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

5190MHz

05/08/2022

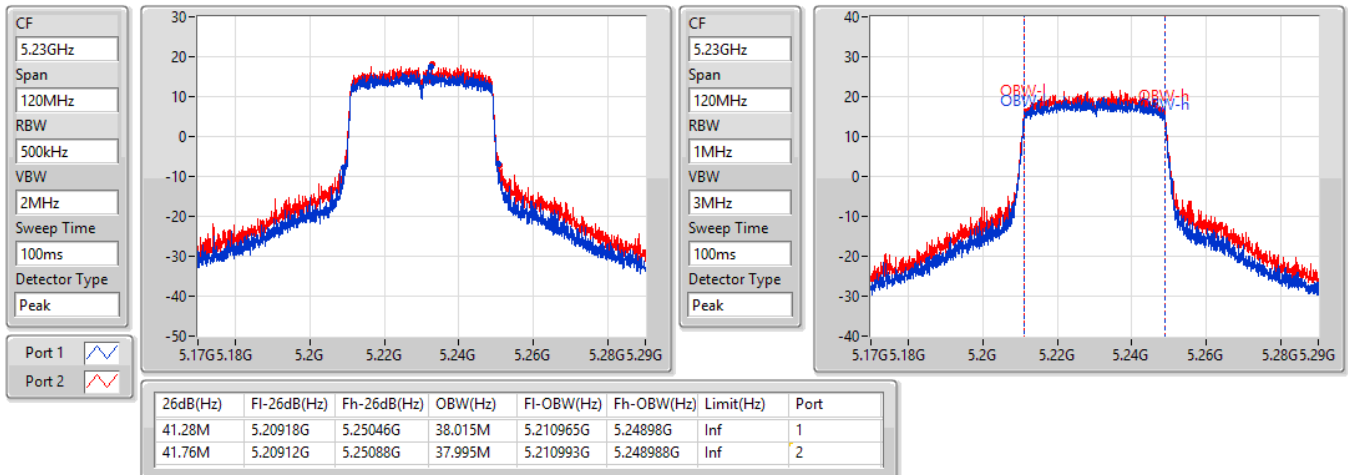


802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

5230MHz

05/08/2022

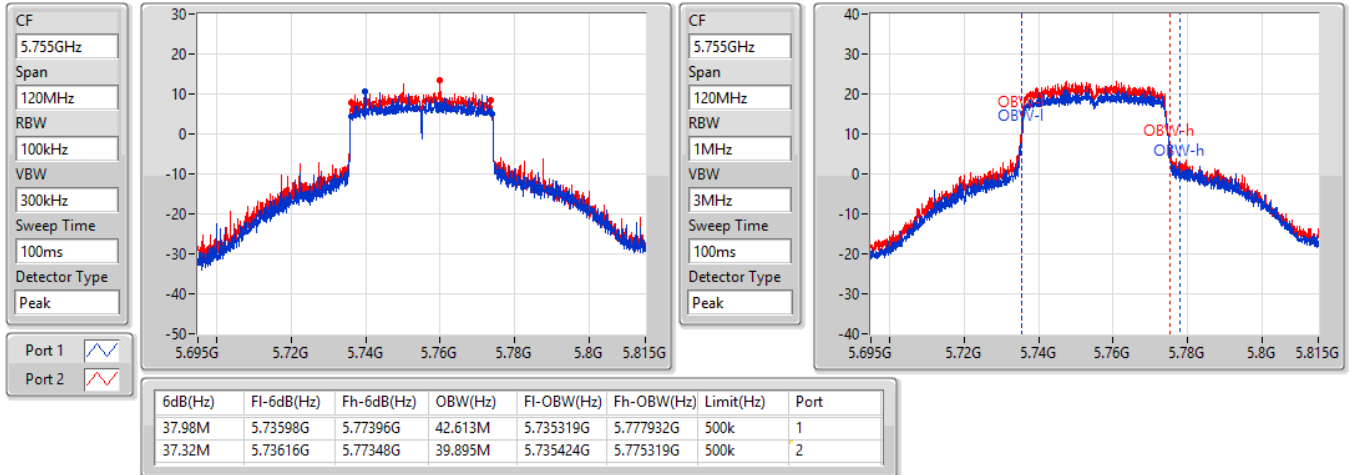


802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

5755MHz

05/08/2022

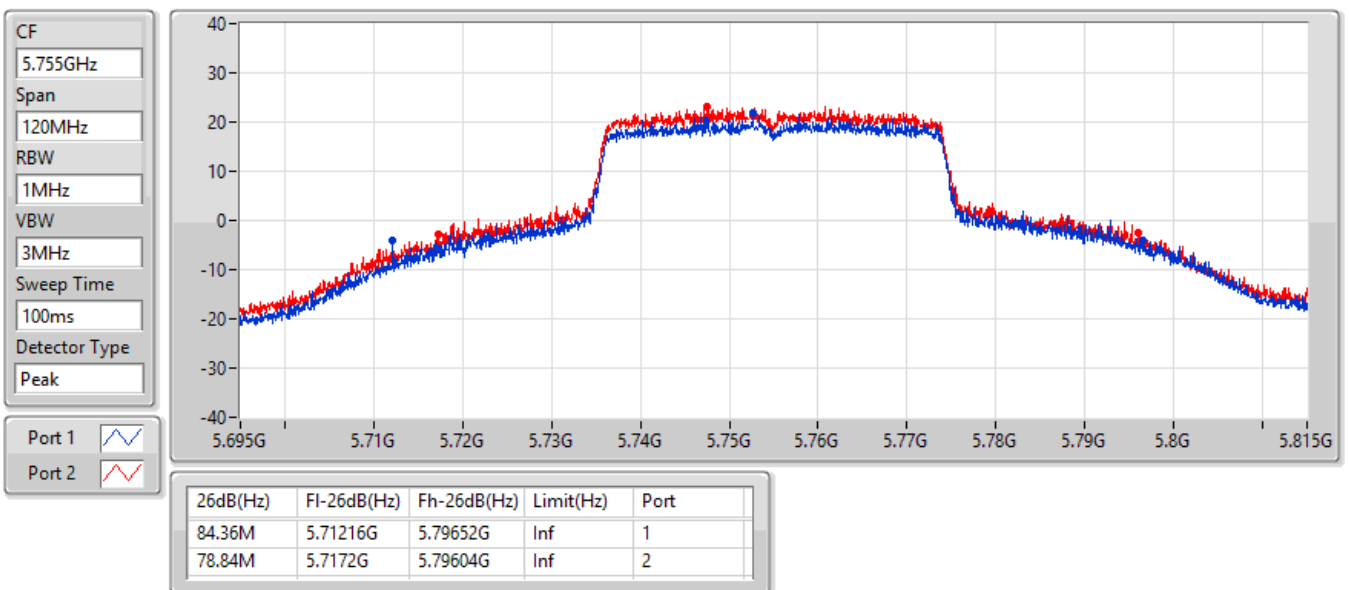


802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

5755MHz

05/08/2022

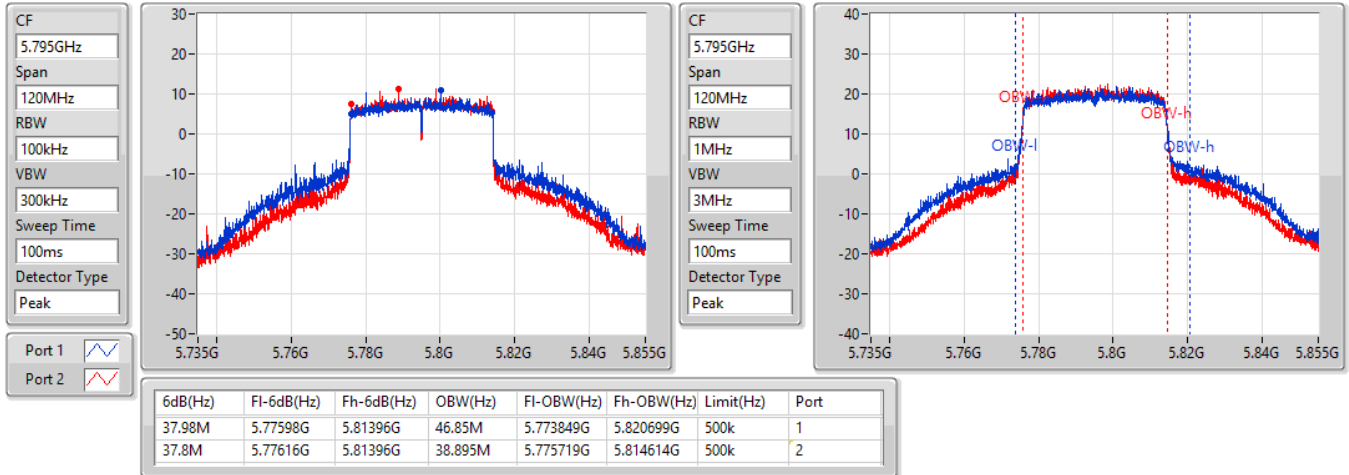


802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

5795MHz

05/08/2022

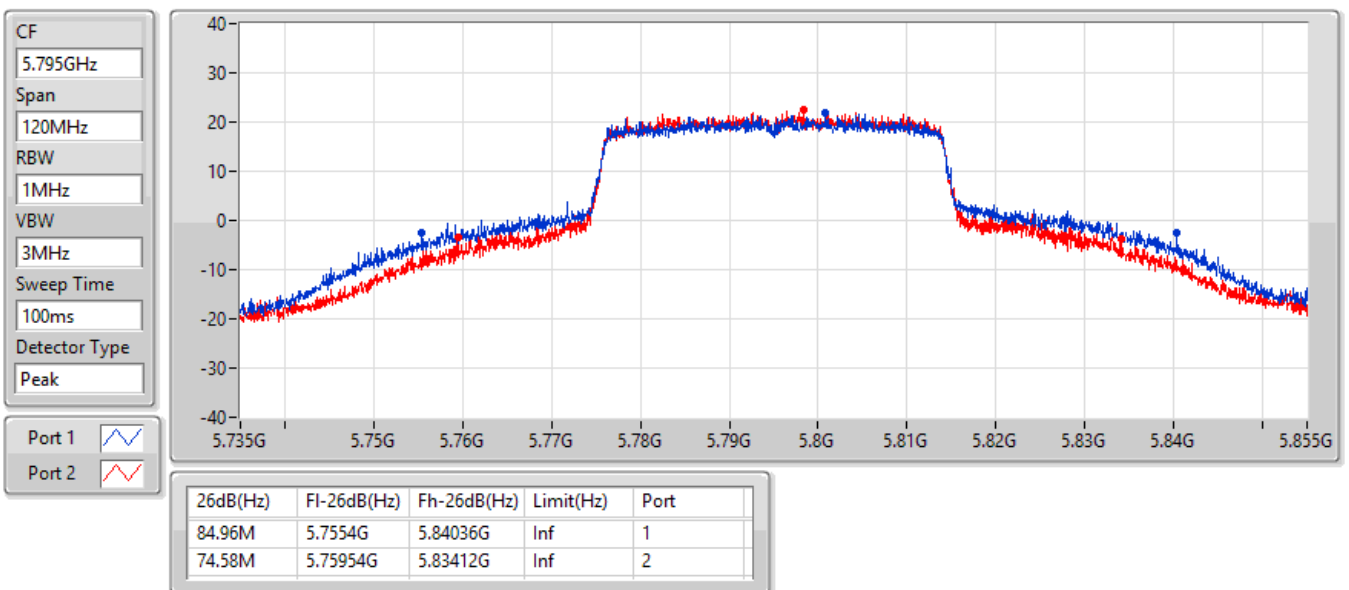


802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

5795MHz

05/08/2022

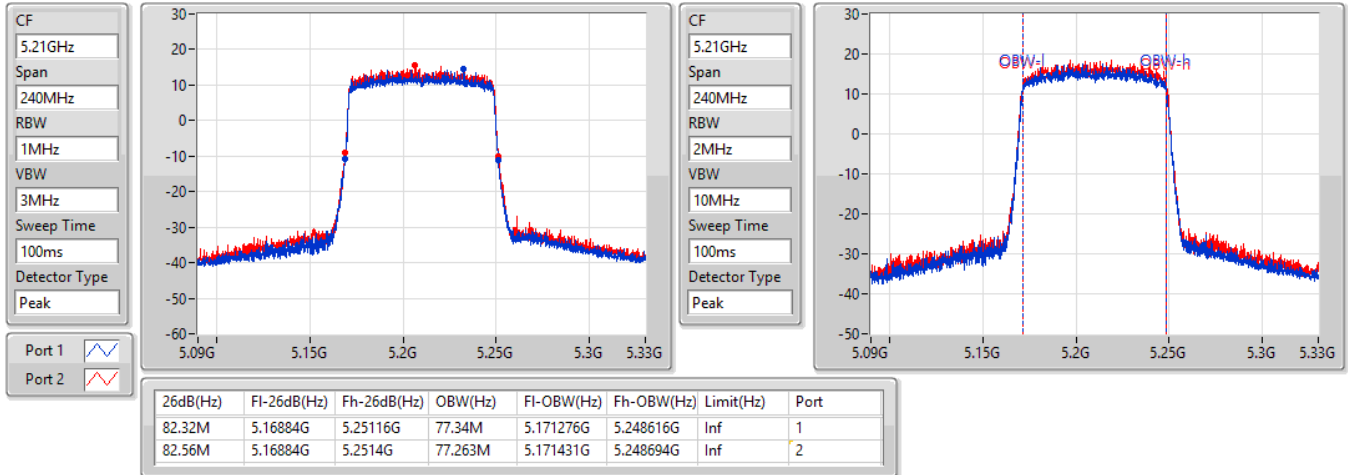


802.11ax HEW80_Nss1,(MCS0)_2TX

EBW

5210MHz

05/08/2022

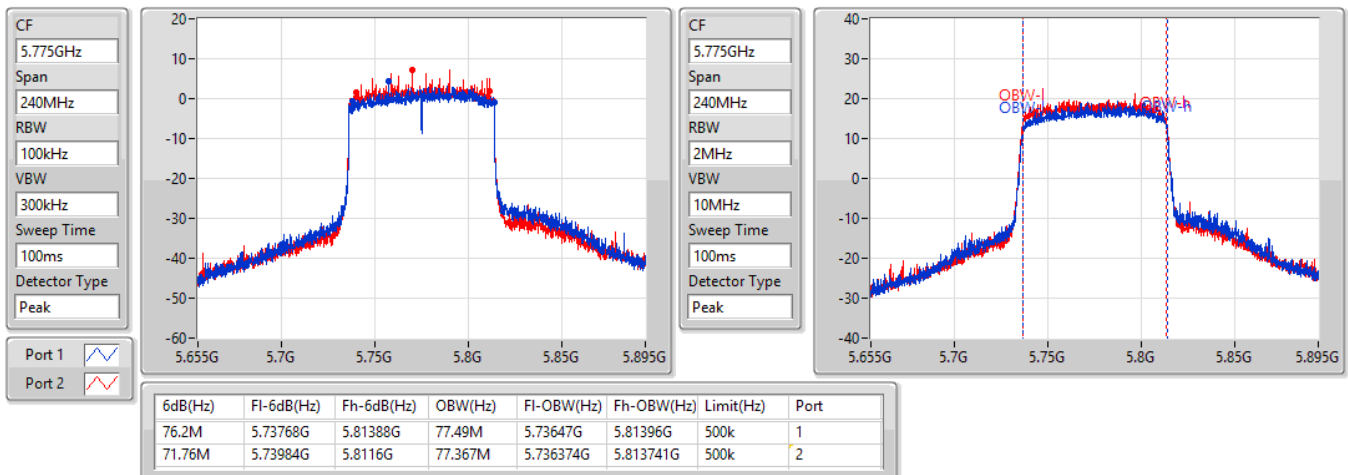


802.11ax HEW80_Nss1,(MCS0)_2TX

EBW

5775MHz

05/08/2022

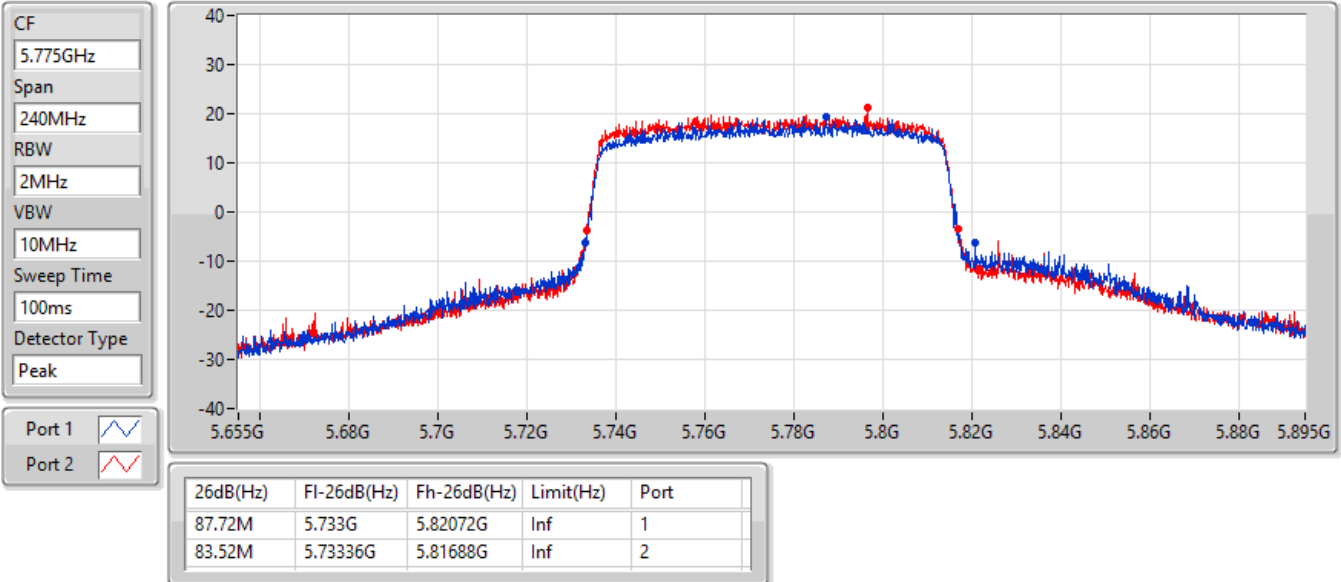


802.11ax HEW80_Nss1,(MCS0)_2TX

EBW

5775MHz

05/08/2022





EBW_R2 + Antenna set 1 for UNII 1 + Antenna set 2 for UNII 3_ Beamforming mode

Appendix B.2

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	21.93M	18.954M	19M0D1D	21.63M	18.916M
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	41.22M	37.921M	37M9D1D	40.8M	37.848M
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	82.2M	77.25M	77M2D1D	81.96M	77.245M
5.725-5.85GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	18.39M	19.028M	19M0D1D	17.97M	18.938M
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	38.04M	38.106M	38M1D1D	36.6M	37.967M
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	77.88M	77.348M	77M3D1D	75.96M	77.263M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Min-OBW = Minimum 99% occupied bandwidth



EBW_R2 + Antenna set 1 for UNII 1 + Antenna set 2 for UNII 3_
Beamforming mode

Appendix B.2

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	21.69M	18.943M	21.63M	18.916M
5200MHz	Pass	Inf	21.75M	18.928M	21.75M	18.954M
5240MHz	Pass	Inf	21.93M	18.928M	21.63M	18.948M
5745MHz	Pass	500k	18.15M	18.938M	18.39M	19.003M
5785MHz	Pass	500k	18.39M	18.989M	18.21M	18.985M
5825MHz	Pass	500k	18.3M	19.028M	17.97M	19.012M
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	41.22M	37.921M	40.92M	37.862M
5230MHz	Pass	Inf	40.92M	37.891M	40.8M	37.848M
5755MHz	Pass	500k	37.8M	37.967M	36.6M	37.988M
5795MHz	Pass	500k	37.74M	38.106M	38.04M	38.018M
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	82.2M	77.25M	81.96M	77.245M
5775MHz	Pass	500k	77.88M	77.263M	75.96M	77.348M

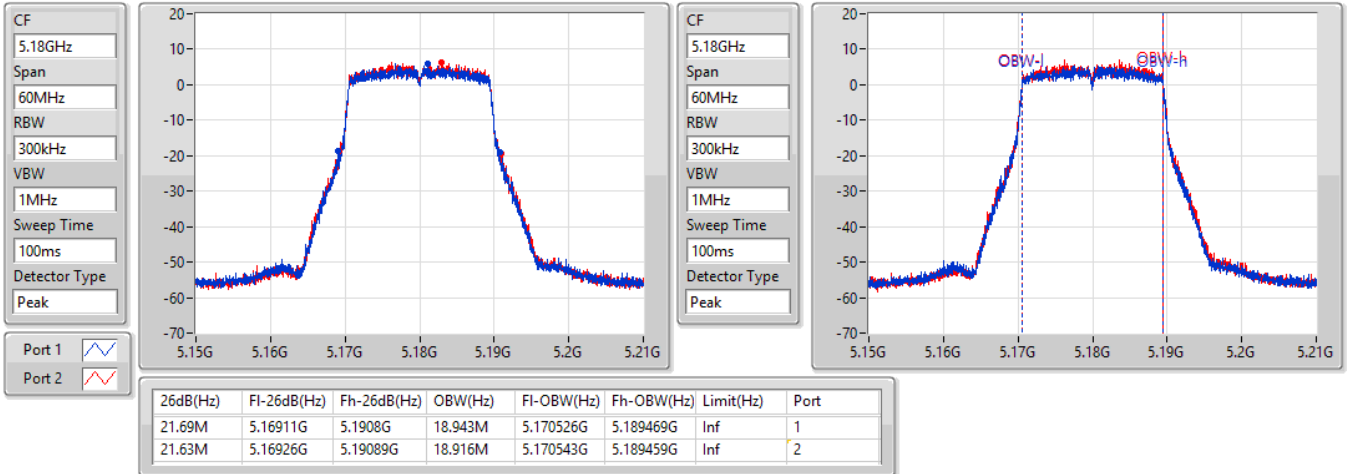
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port X 99% occupied bandwidth

802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

5180MHz

03/10/2022

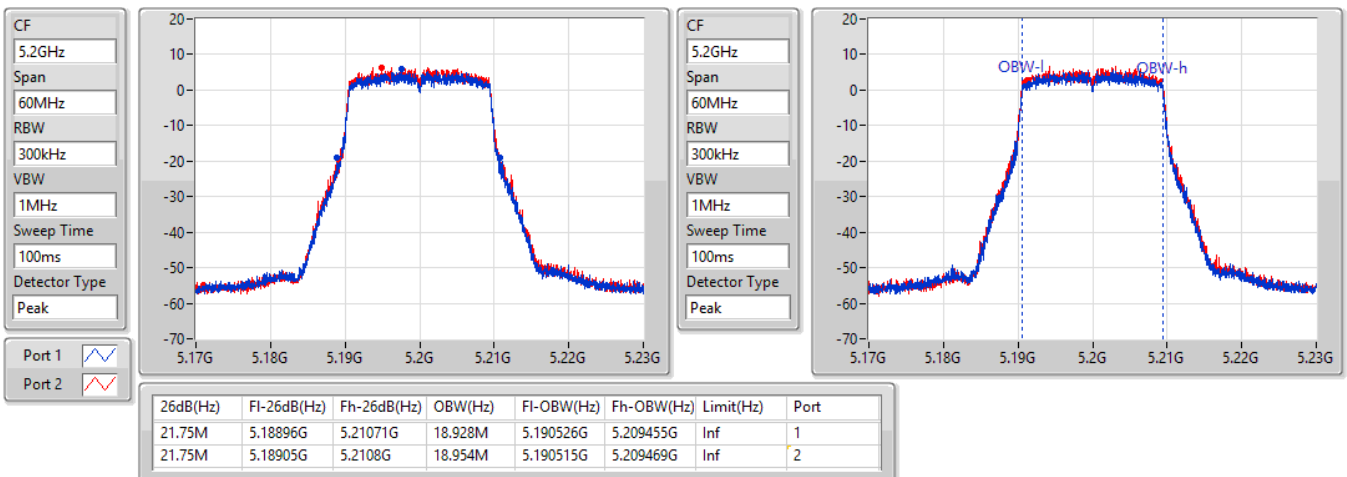


802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

5200MHz

03/10/2022

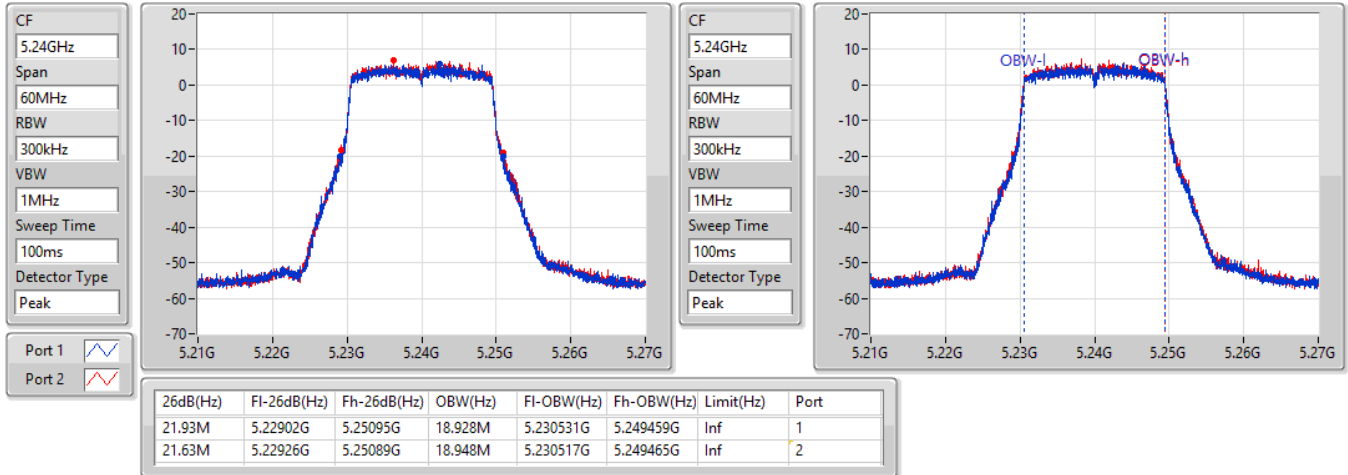


802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

5240MHz

03/10/2022

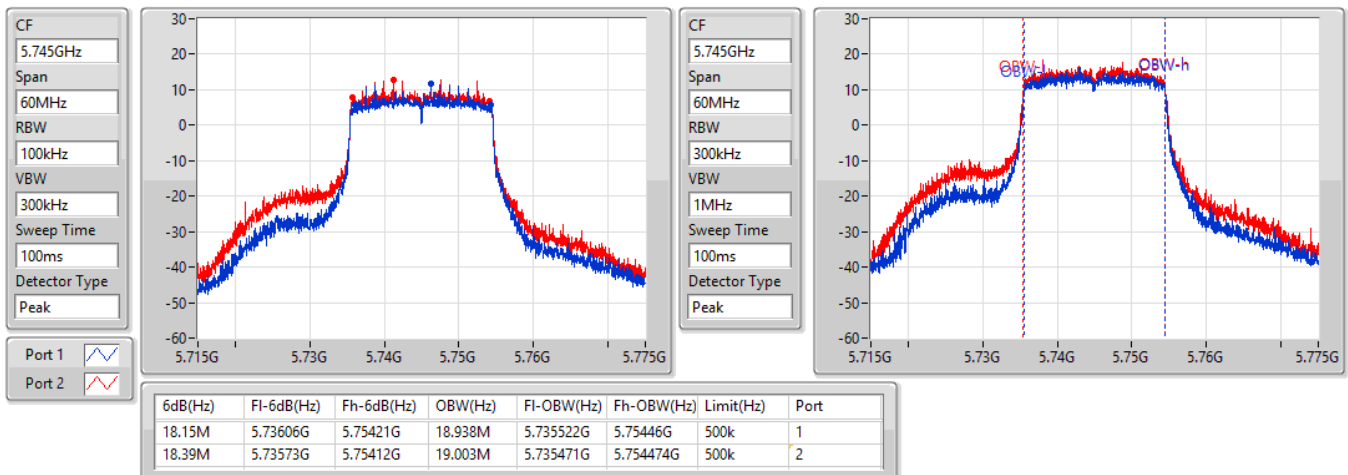


802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

5745MHz

03/10/2022

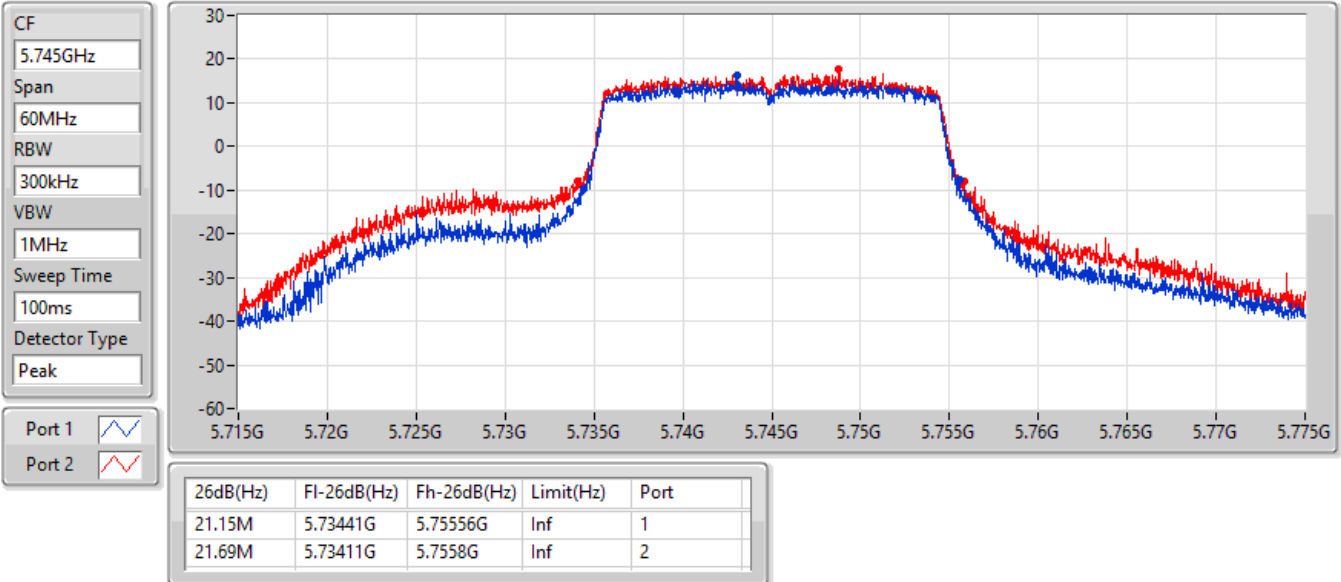


802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

5745MHz

03/10/2022

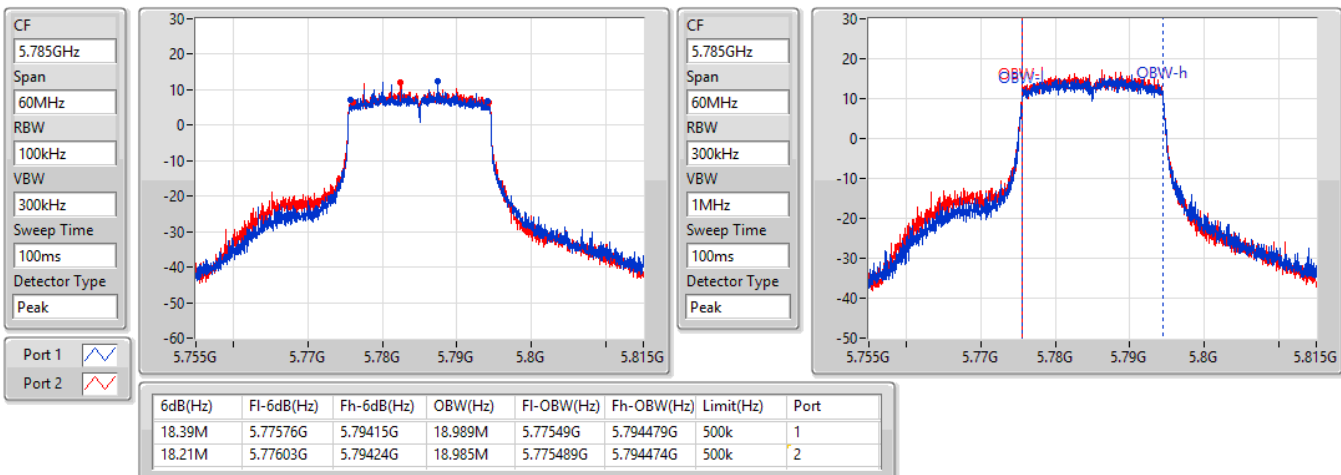


802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

5785MHz

03/10/2022

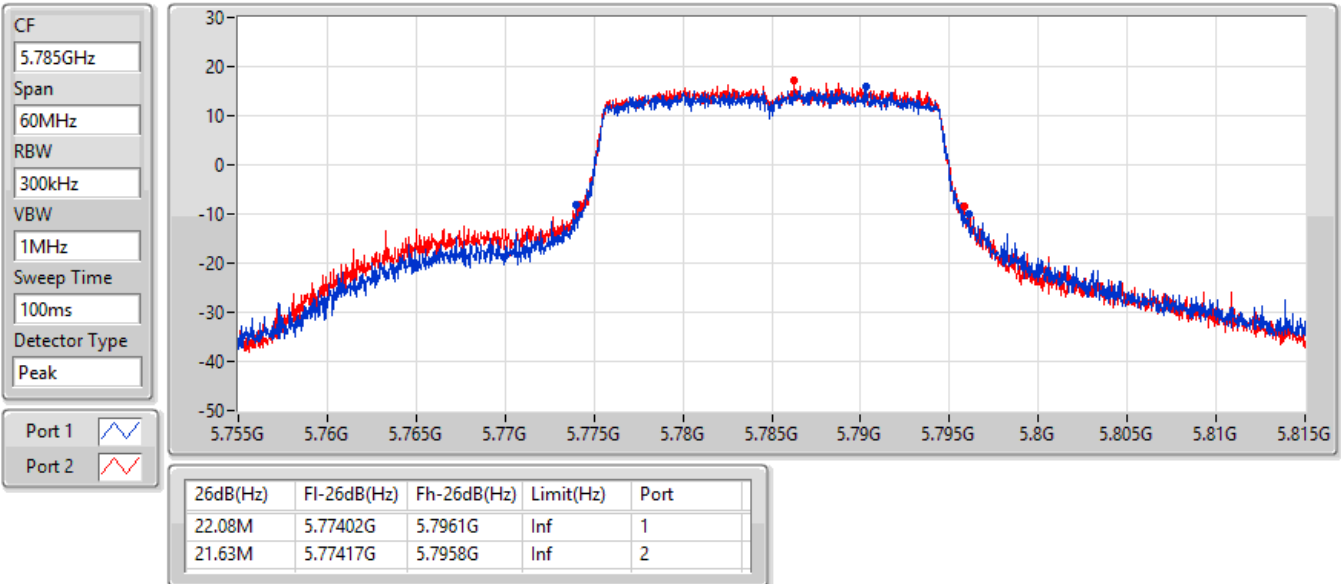


802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

5785MHz

03/10/2022

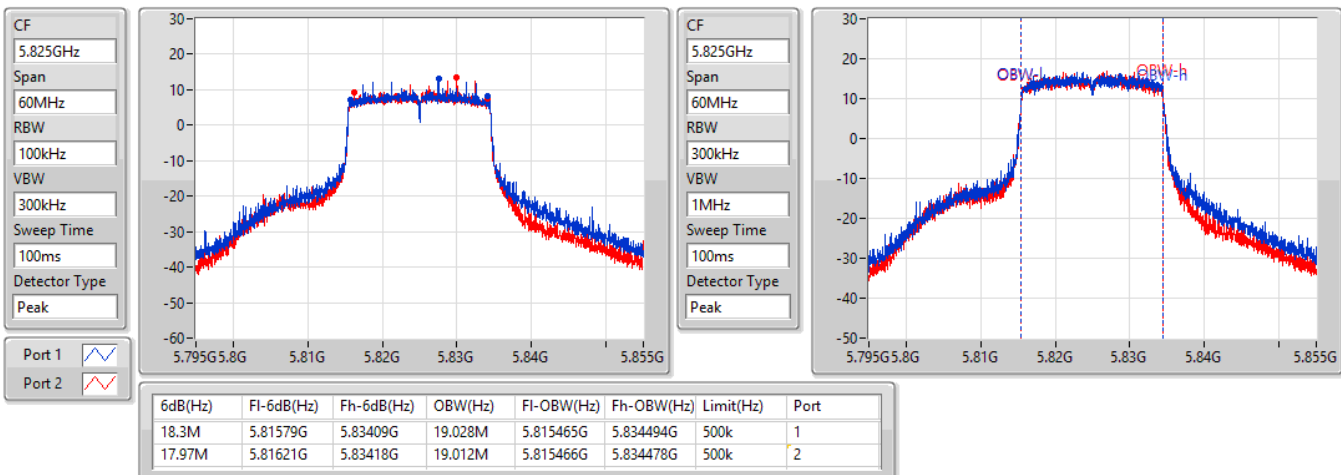


802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

5825MHz

03/10/2022

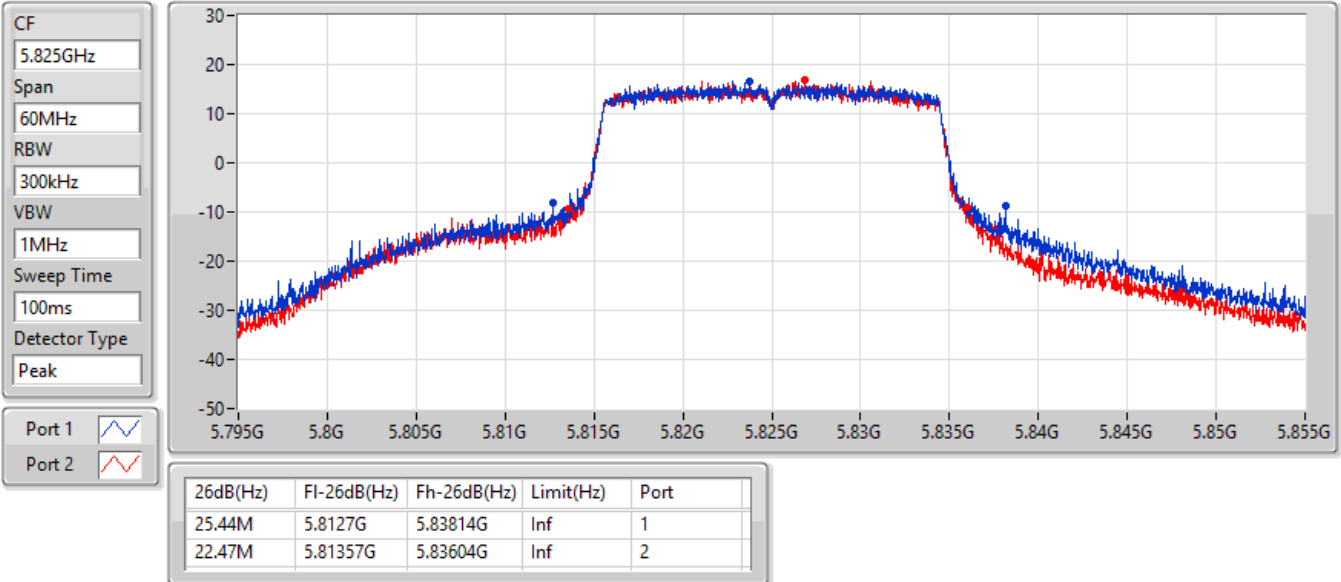


802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

5825MHz

03/10/2022

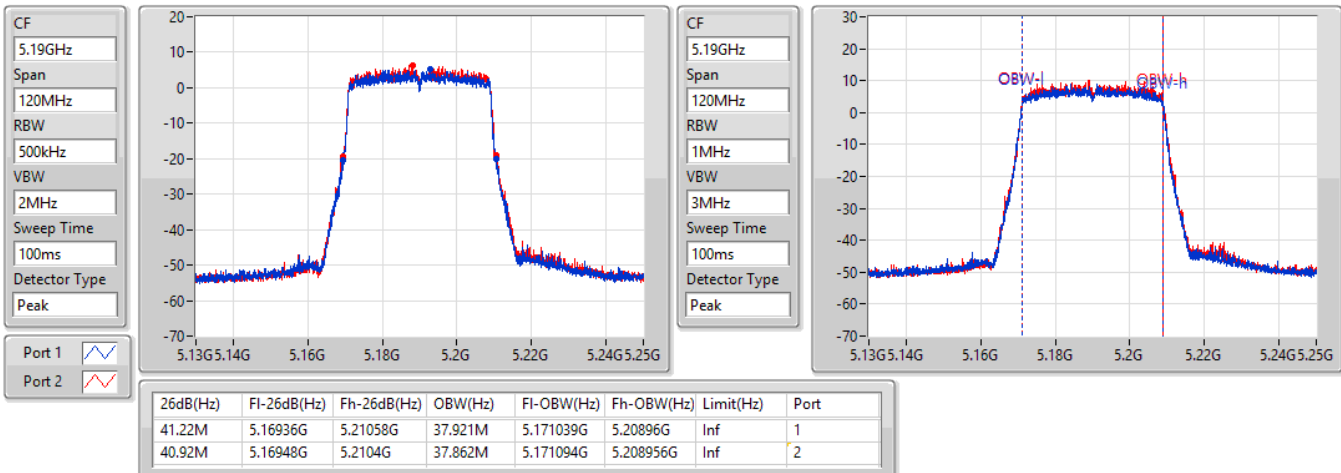


802.11ax HEW40-BF_Nss1,(MCS0)_2TX

EBW

5190MHz

03/10/2022

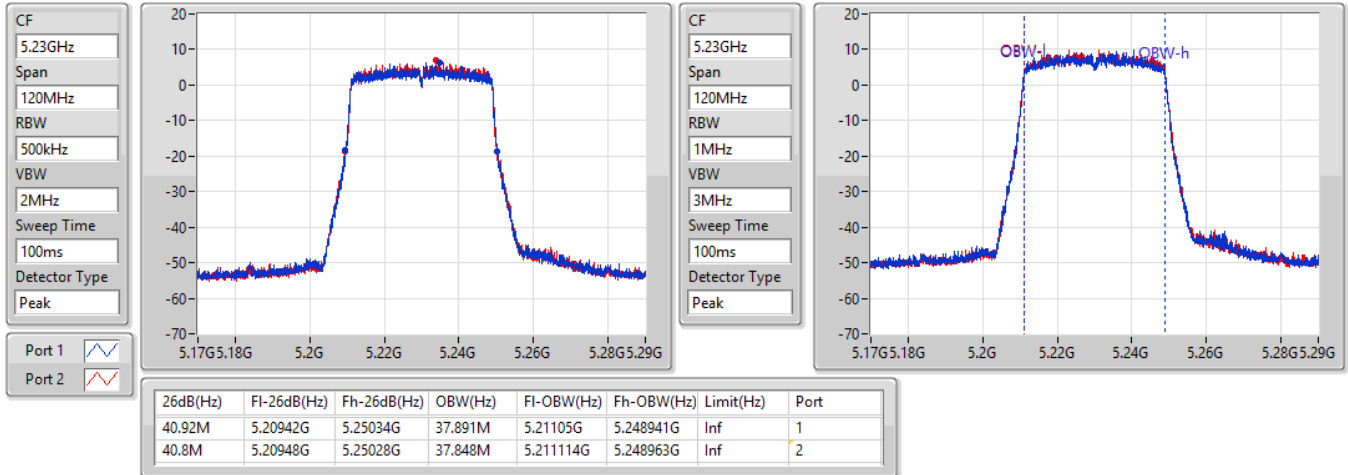


802.11ax HEW40-BF_Nss1,(MCS0)_2TX

EBW

5230MHz

03/10/2022

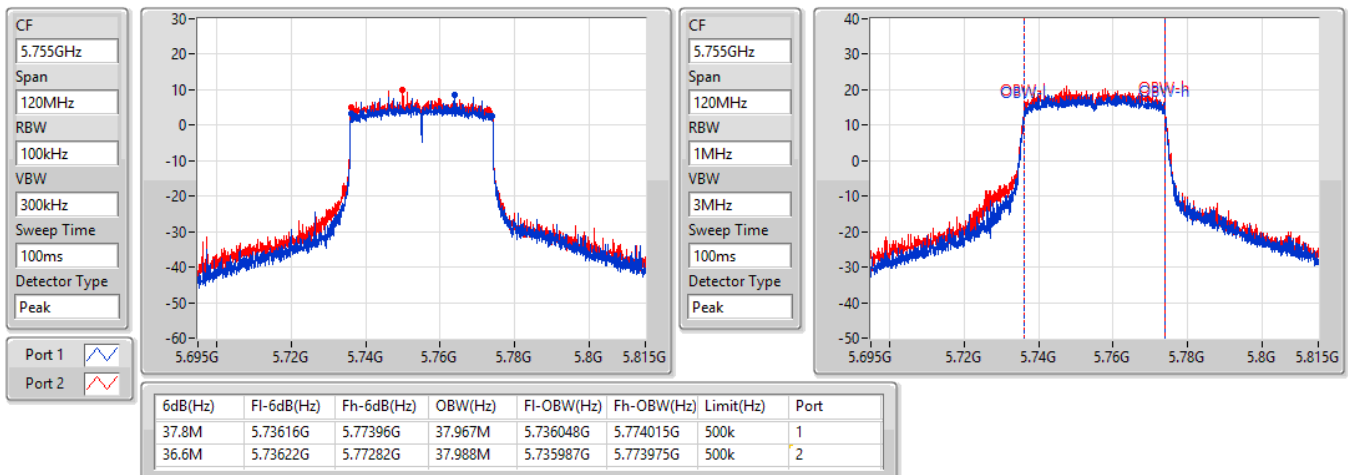


802.11ax HEW40-BF_Nss1,(MCS0)_2TX

EBW

5755MHz

03/10/2022

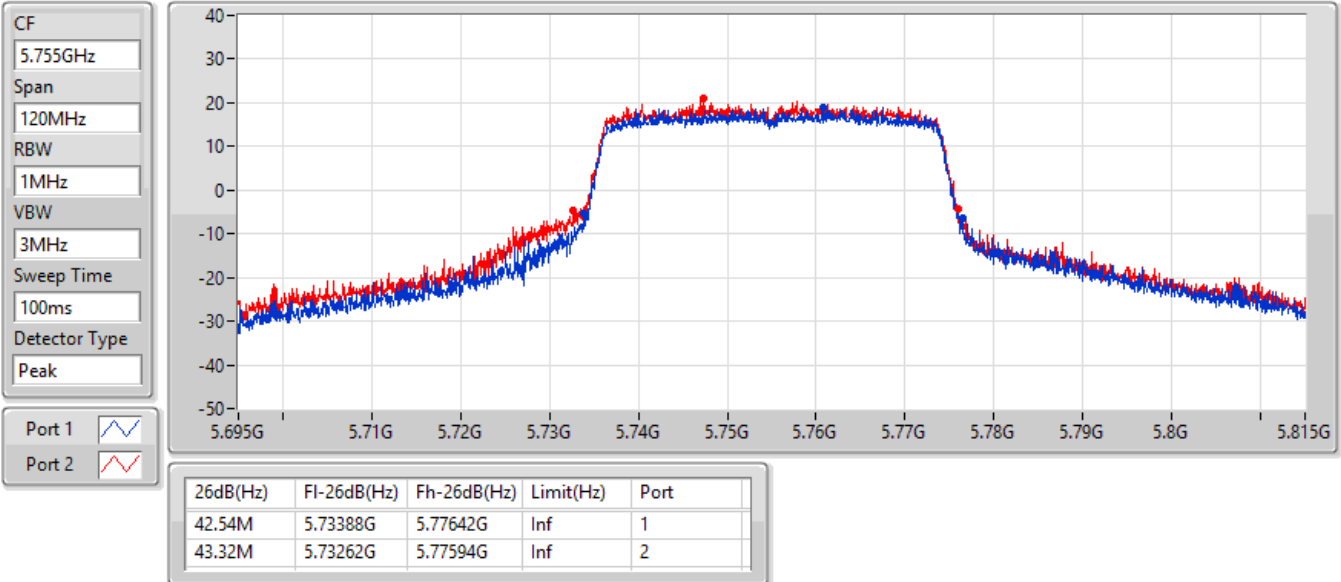


802.11ax HEW40-BF_Nss1,(MCS0)_2TX

EBW

5755MHz

03/10/2022

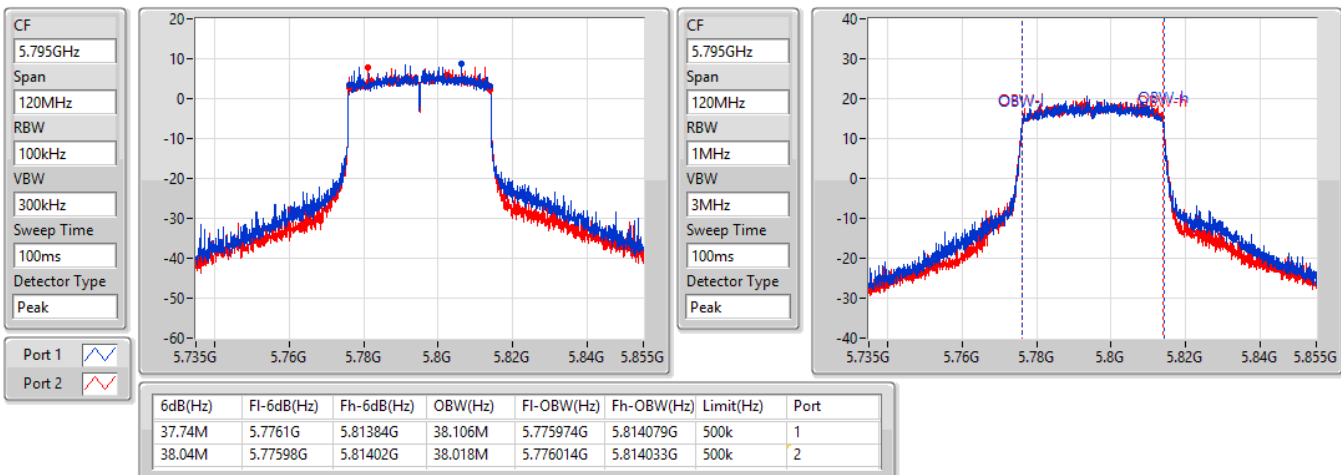


802.11ax HEW40-BF_Nss1,(MCS0)_2TX

EBW

5795MHz

03/10/2022

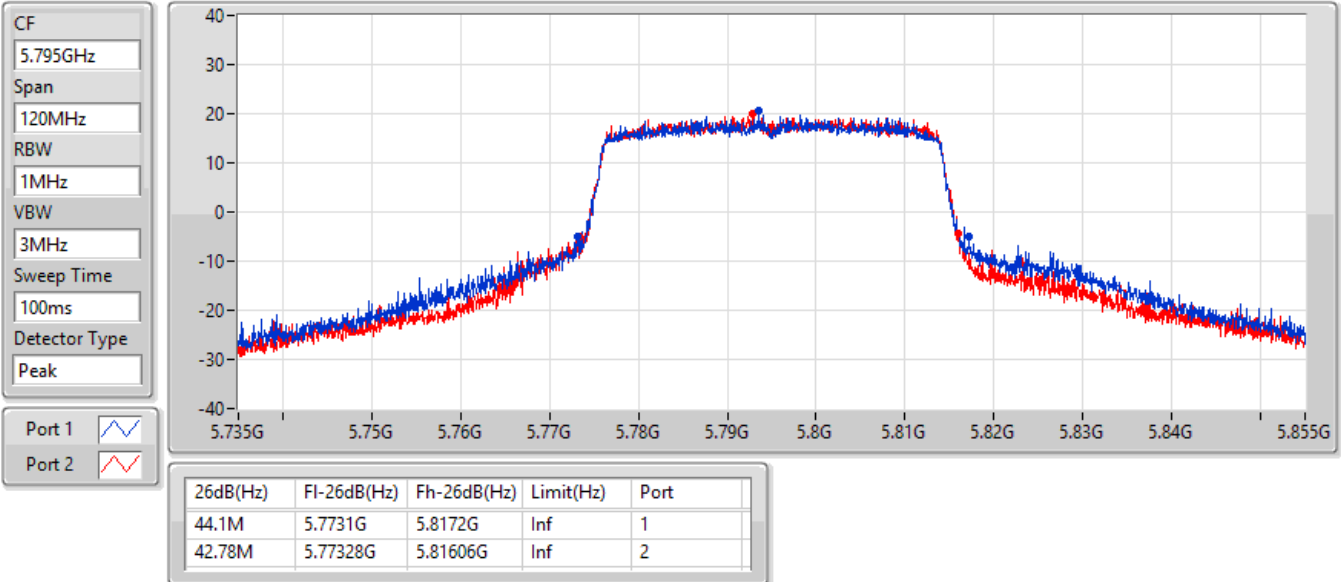


802.11ax HEW40-BF_Nss1,(MCS0)_2TX

EBW

5795MHz

03/10/2022

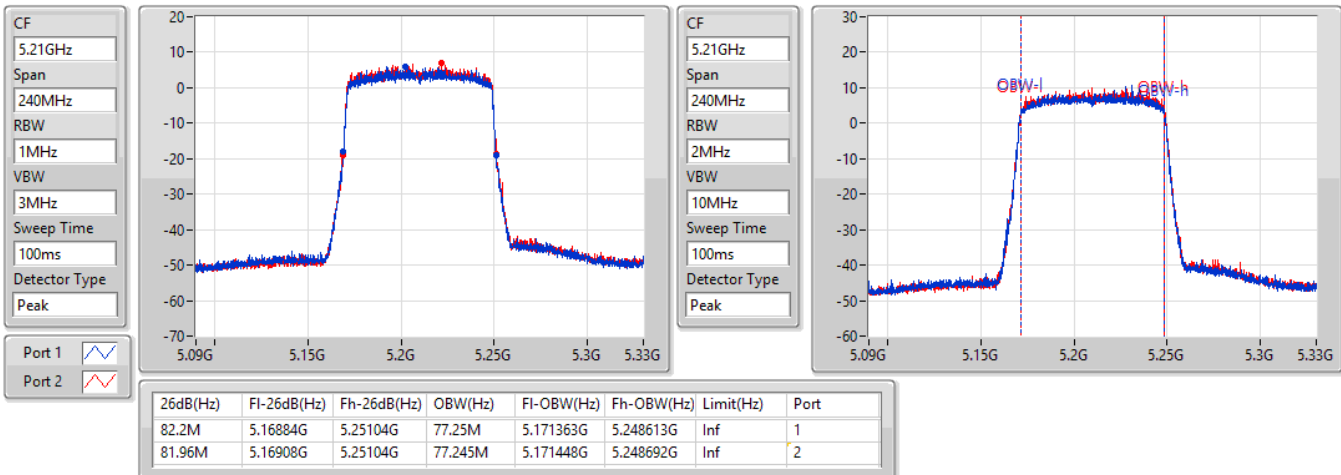


802.11ax HEW80-BF_Nss1,(MCS0)_2TX

EBW

5210MHz

03/10/2022

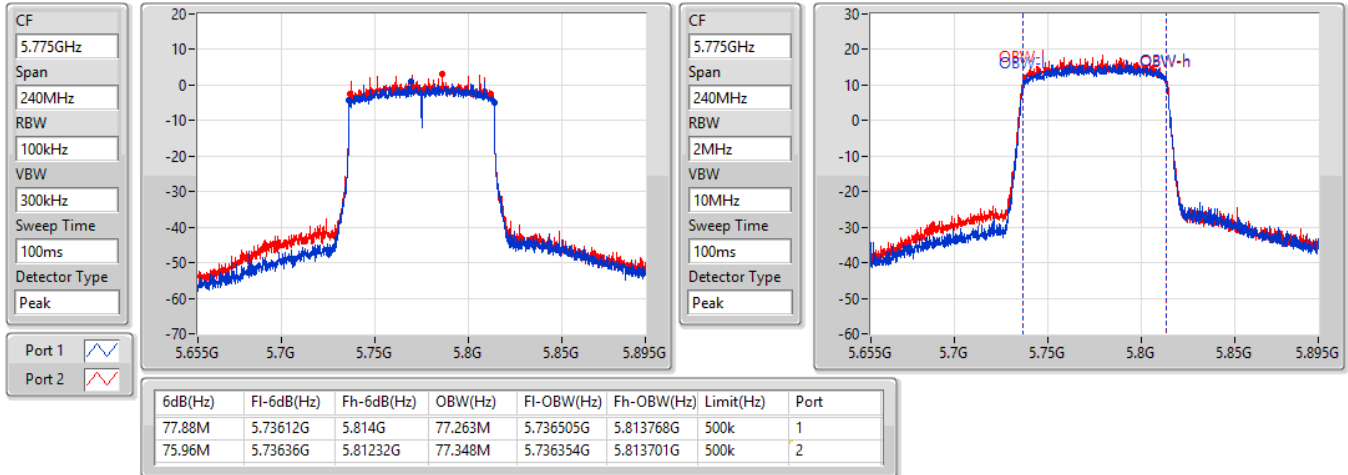


802.11ax HEW80-BF_Nss1,(MCS0)_2TX

EBW

5775MHz

03/10/2022

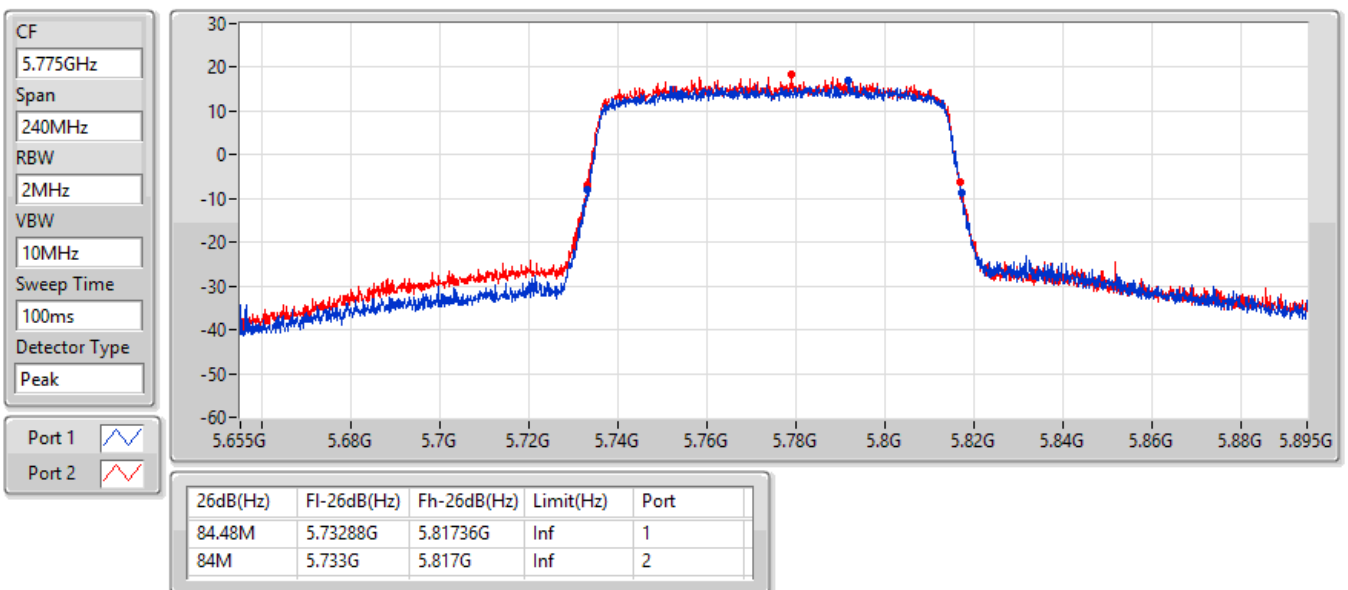


802.11ax HEW80-BF_Nss1,(MCS0)_2TX

EBW

5775MHz

03/10/2022



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	20.73M	16.462M	16M5D1D	20.49M	16.432M
802.11ax HEW20_Nss1,(MCS0)_2TX	21.84M	18.951M	19M0D1D	21.36M	18.921M
802.11ax HEW40_Nss1,(MCS0)_2TX	41.28M	37.961M	38M0D1D	40.8M	37.841M
802.11ax HEW80_Nss1,(MCS0)_2TX	81.84M	77.481M	77M5D1D	81.84M	77.241M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	16.05M	16.462M	16M5D1D	15.63M	16.432M
802.11ax HEW20_Nss1,(MCS0)_2TX	18.09M	18.951M	19M0D1D	17.37M	18.921M
802.11ax HEW40_Nss1,(MCS0)_2TX	37.86M	37.901M	37M9D1D	36.9M	37.841M
802.11ax HEW80_Nss1,(MCS0)_2TX	74.88M	77.361M	77M4D1D	73.44M	77.241M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
 Max-OBW = Maximum 99% occupied bandwidth;
 Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
 Min-OBW = Minimum 99% occupied bandwidth

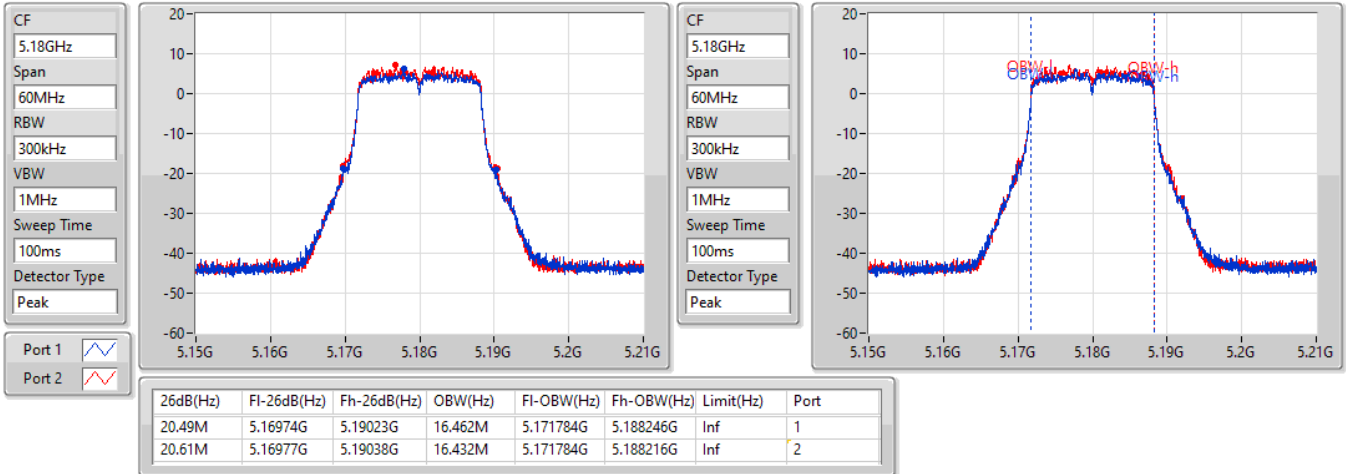
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	20.49M	16.462M	20.61M	16.432M
5200MHz	Pass	Inf	20.58M	16.432M	20.61M	16.432M
5240MHz	Pass	Inf	20.55M	16.432M	20.73M	16.432M
5745MHz	Pass	500k	15.63M	16.432M	15.99M	16.432M
5785MHz	Pass	500k	15.9M	16.462M	16.05M	16.462M
5825MHz	Pass	500k	16.05M	16.432M	15.63M	16.432M
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	21.72M	18.951M	21.45M	18.921M
5200MHz	Pass	Inf	21.84M	18.951M	21.78M	18.921M
5240MHz	Pass	Inf	21.36M	18.921M	21.81M	18.951M
5745MHz	Pass	500k	17.97M	18.921M	17.37M	18.951M
5785MHz	Pass	500k	18.09M	18.951M	18M	18.951M
5825MHz	Pass	500k	17.76M	18.951M	17.58M	18.951M
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	41.16M	37.901M	41.22M	37.841M
5230MHz	Pass	Inf	41.28M	37.901M	40.8M	37.961M
5755MHz	Pass	500k	37.86M	37.901M	37.5M	37.901M
5795MHz	Pass	500k	37.44M	37.841M	36.9M	37.901M
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	81.84M	77.481M	81.84M	77.241M
5775MHz	Pass	500k	74.88M	77.241M	73.44M	77.361M

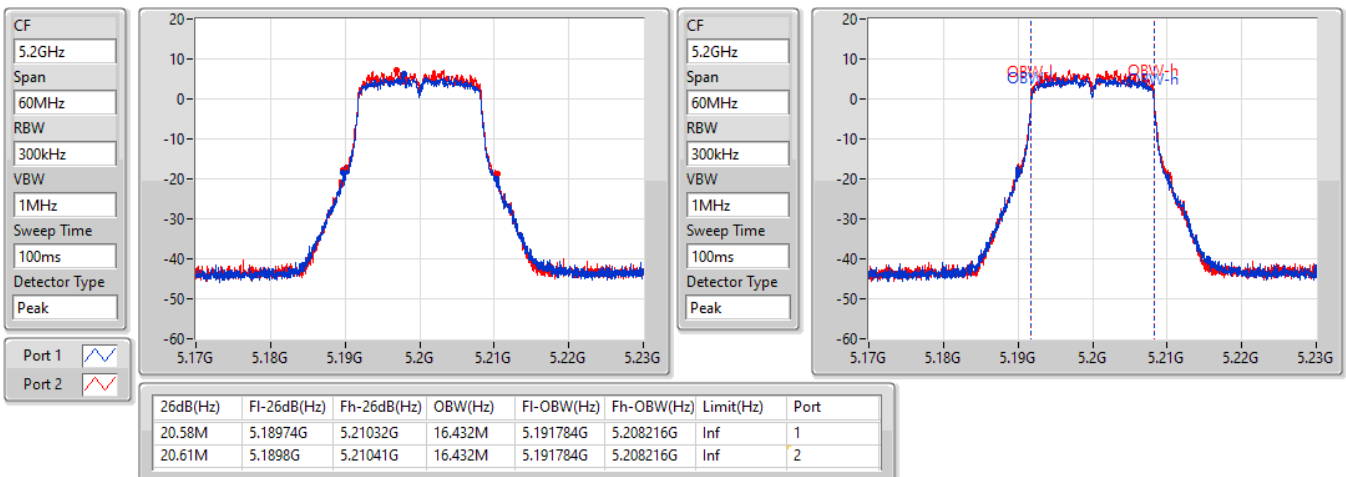
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port X 99% occupied bandwidth

802.11a_Nss1,(6Mbps)_2TX
EBW
5180MHz

12/09/2022

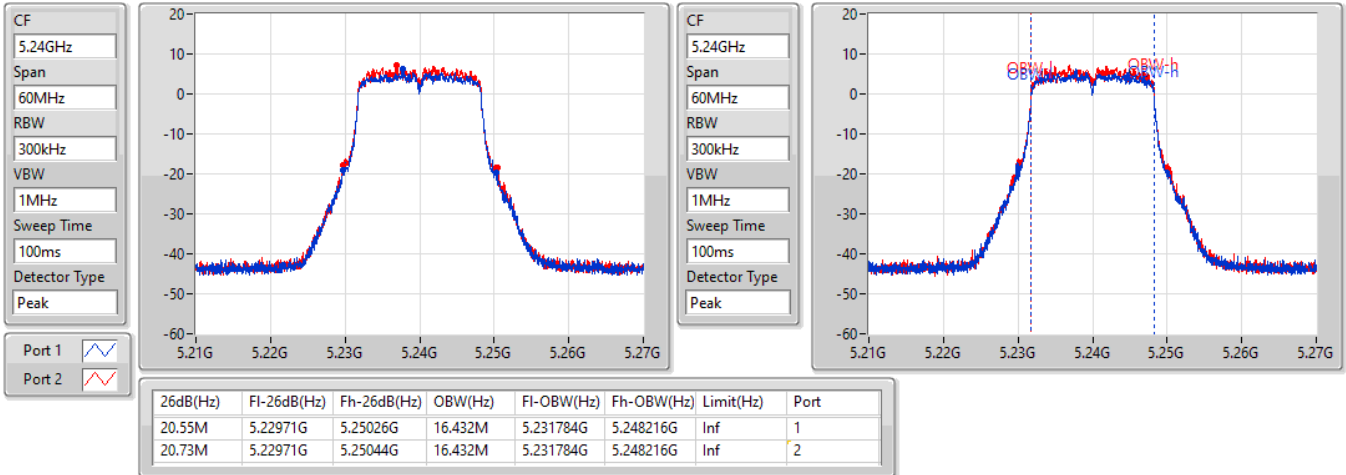

802.11a_Nss1,(6Mbps)_2TX
EBW
5200MHz

12/09/2022

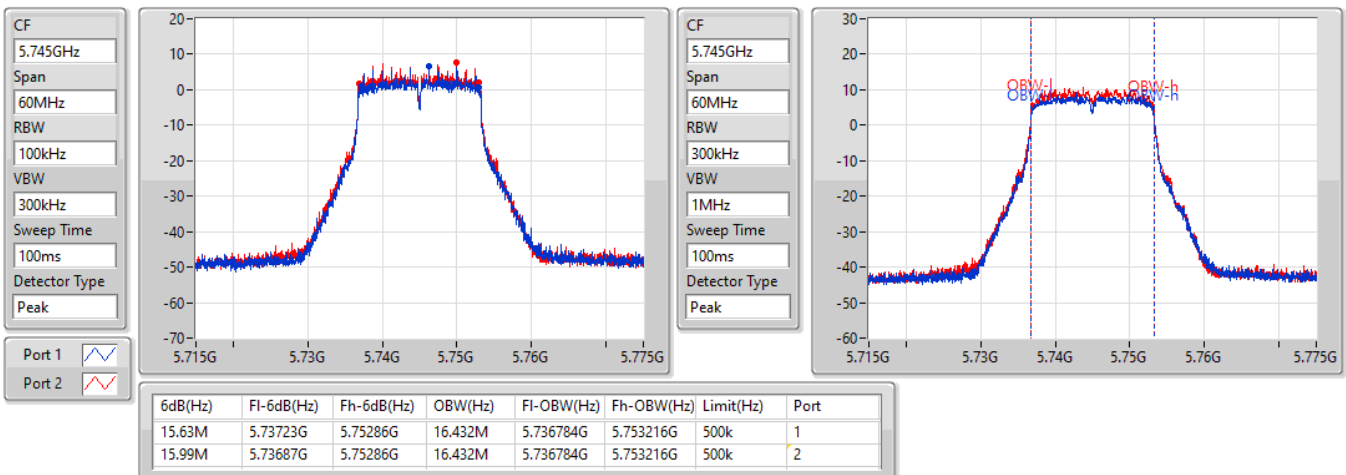


802.11a_Nss1,(6Mbps)_2TX
EBW
5240MHz

12/09/2022


802.11a_Nss1,(6Mbps)_2TX
EBW
5745MHz

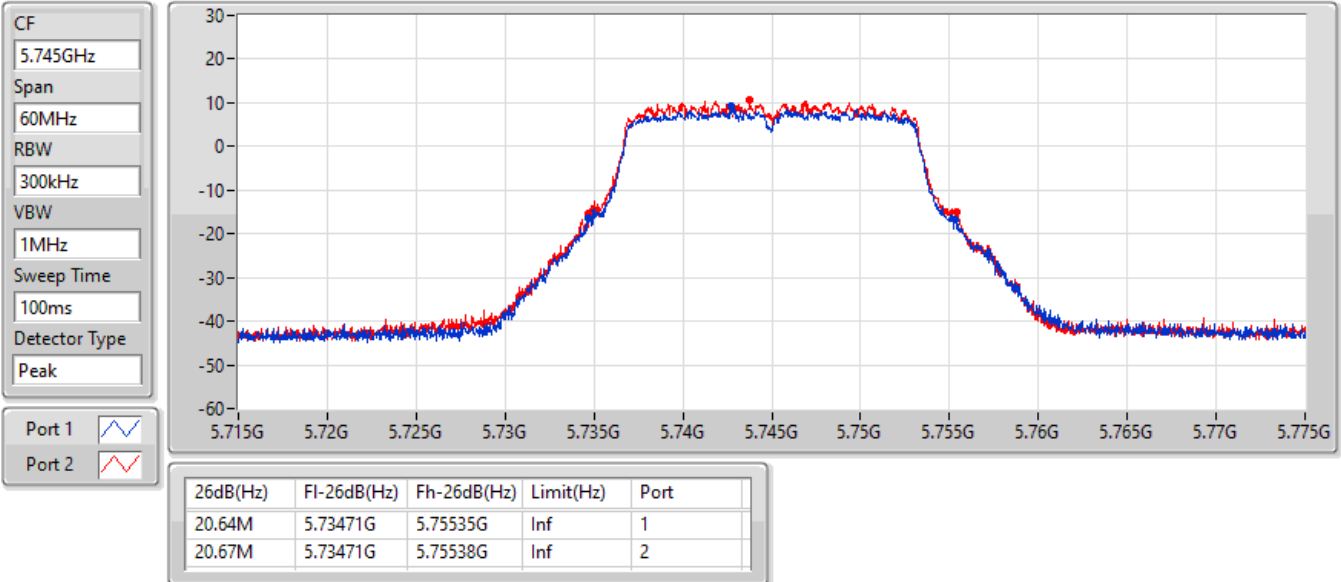
07/09/2022



802.11a_Nss1,(6Mbps)_2TX

EBW
5745MHz

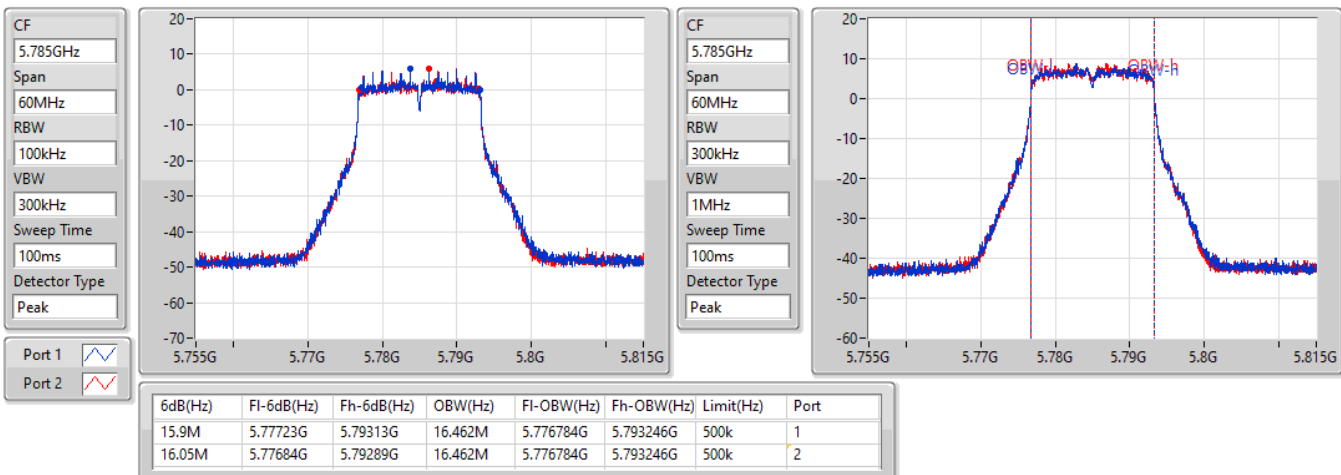
07/09/2022



802.11a_Nss1,(6Mbps)_2TX

EBW
5785MHz

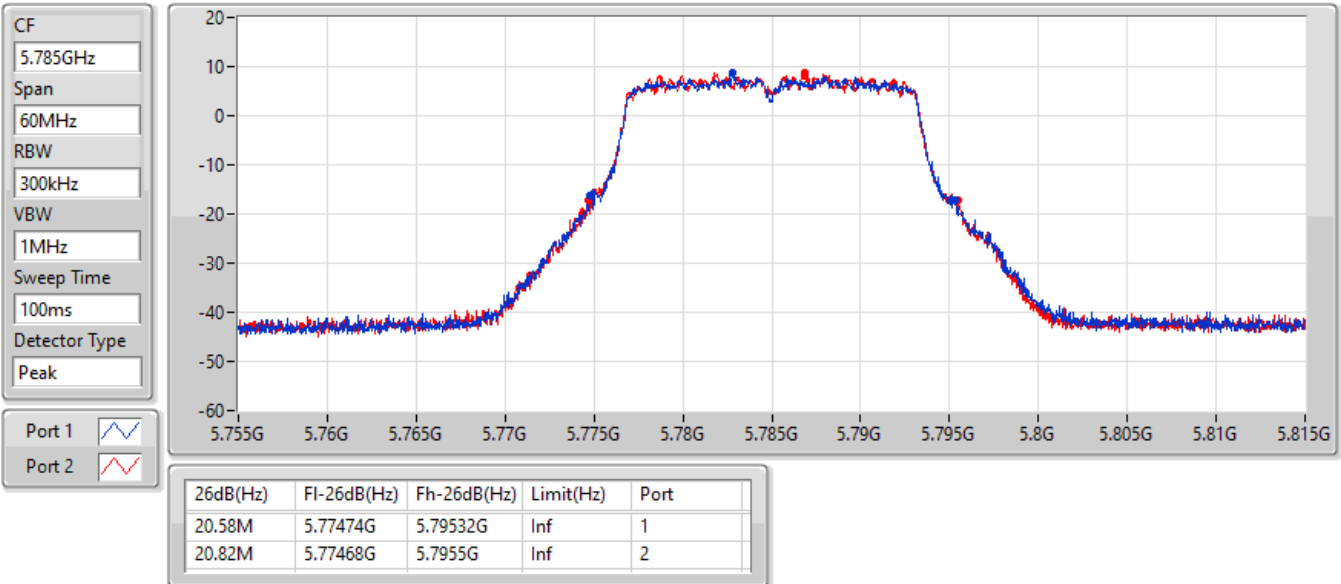
07/09/2022



802.11a_Nss1,(6Mbps)_2TX

EBW
5785MHz

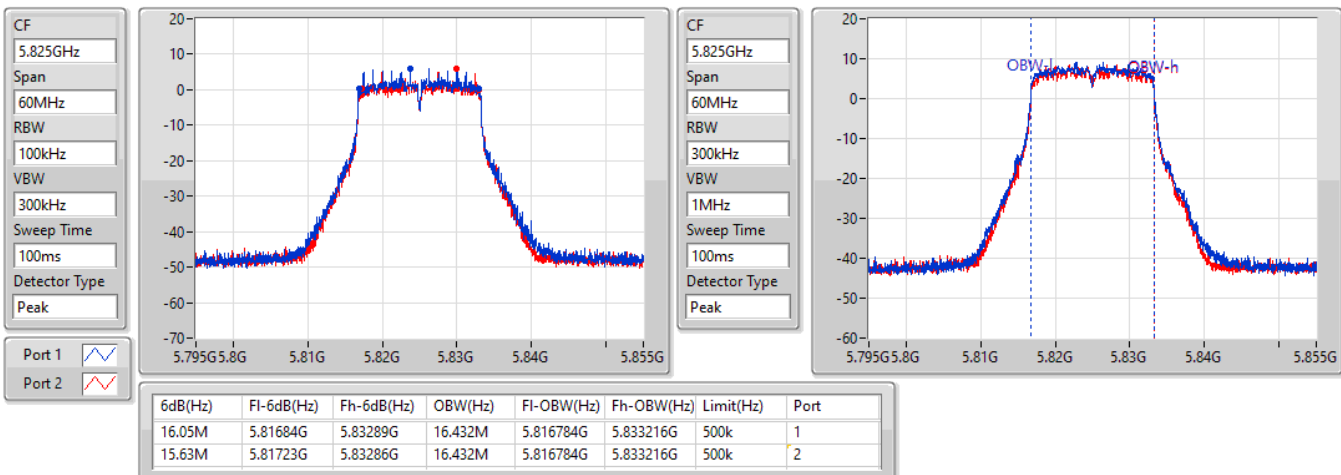
07/09/2022



802.11a_Nss1,(6Mbps)_2TX

EBW
5825MHz

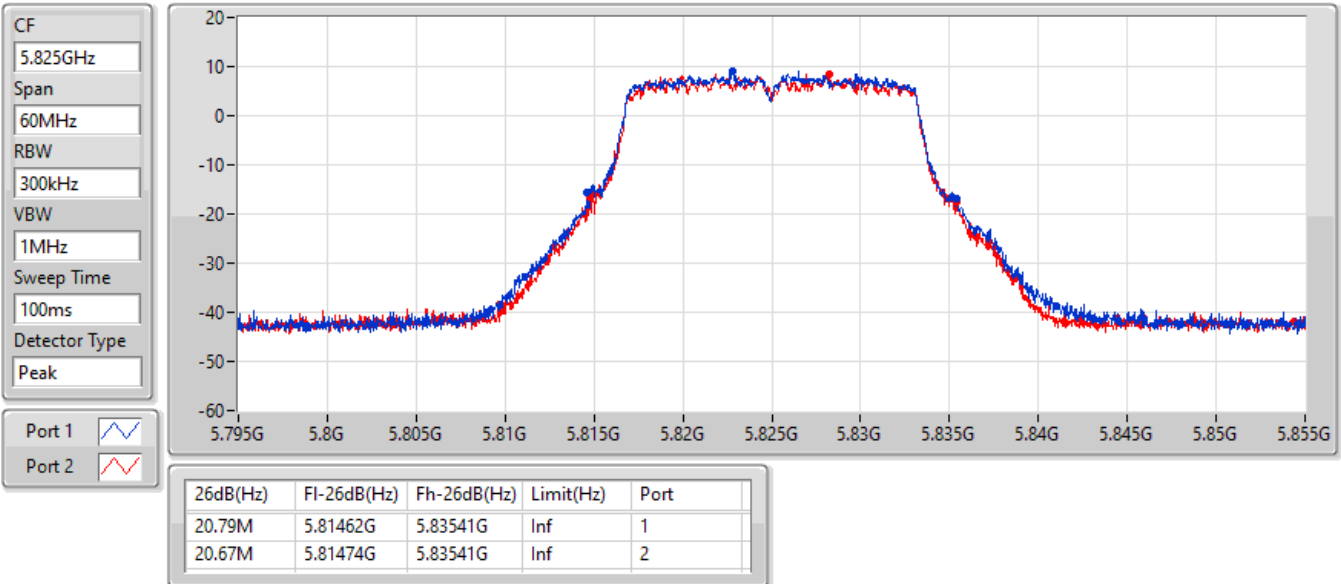
07/09/2022



802.11a_Nss1,(6Mbps)_2TX

EBW
5825MHz

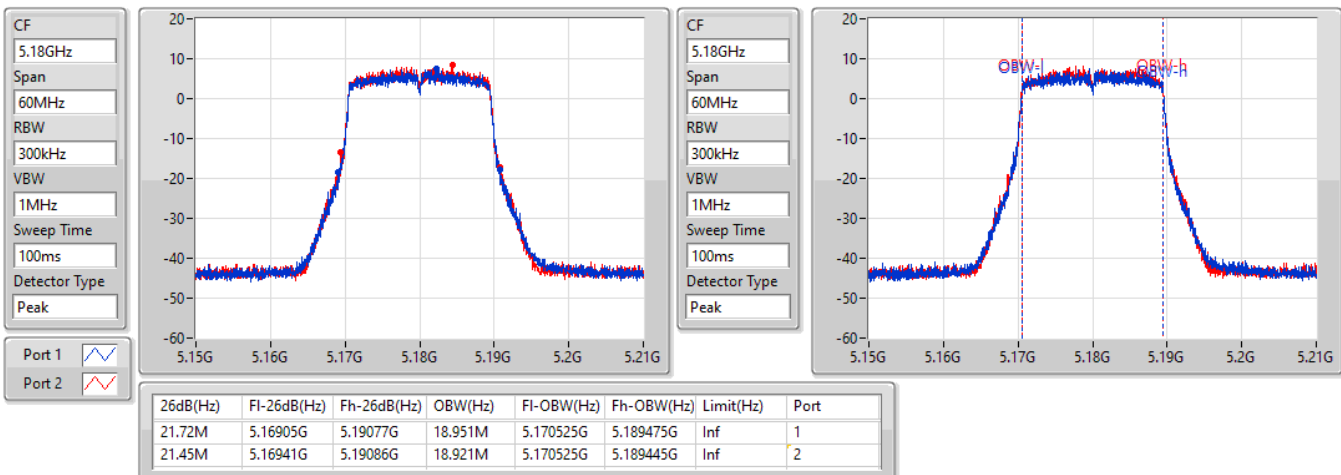
07/09/2022



802.11ax HEW20_Nss1,(MCS0)_2TX

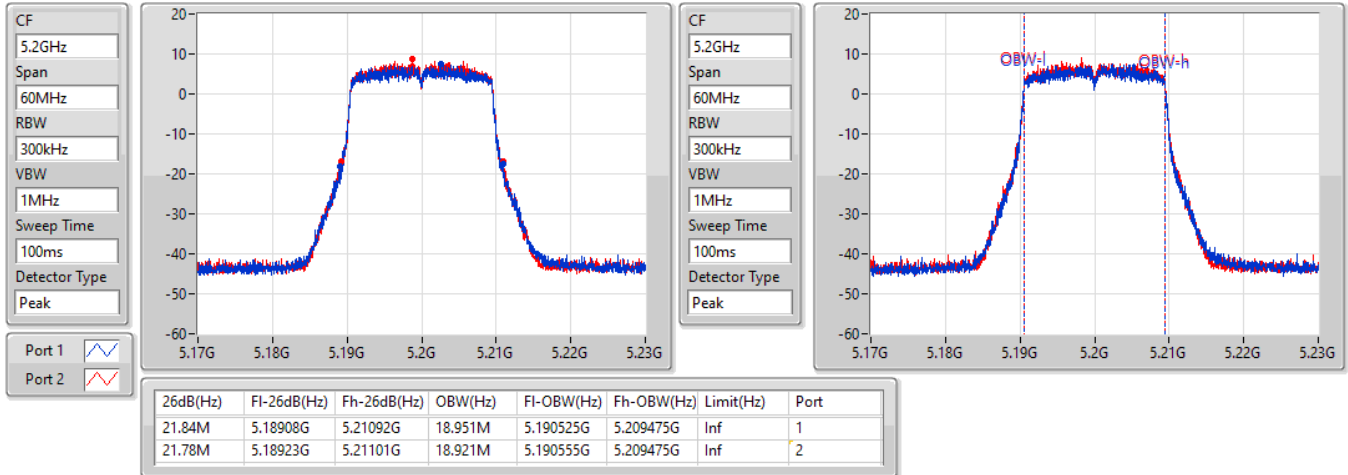
EBW
5180MHz

12/09/2022

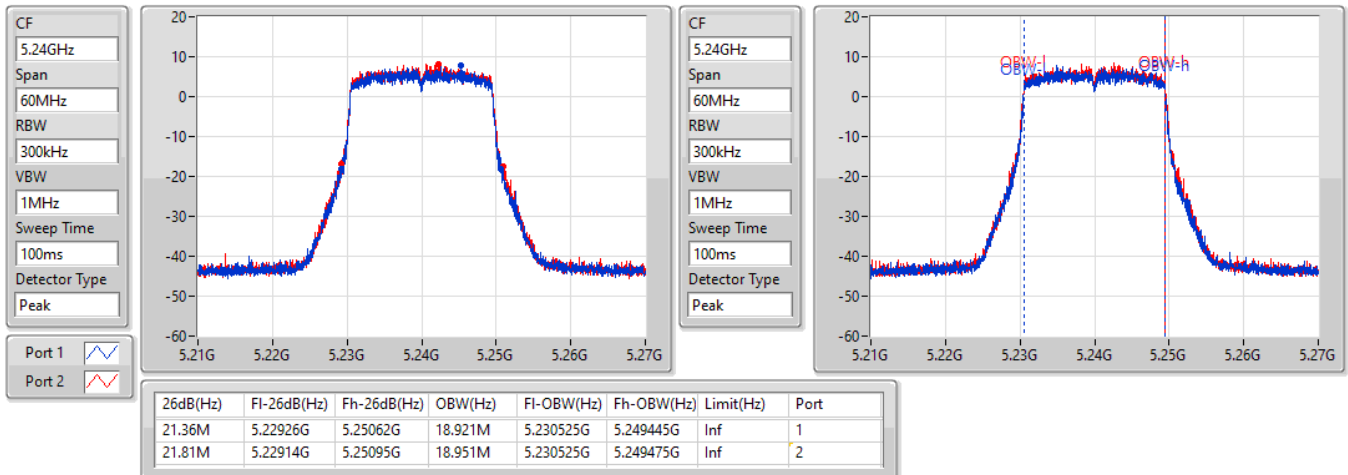


802.11ax HEW20_Nss1,(MCS0)_2TX
EBW
5200MHz

12/09/2022

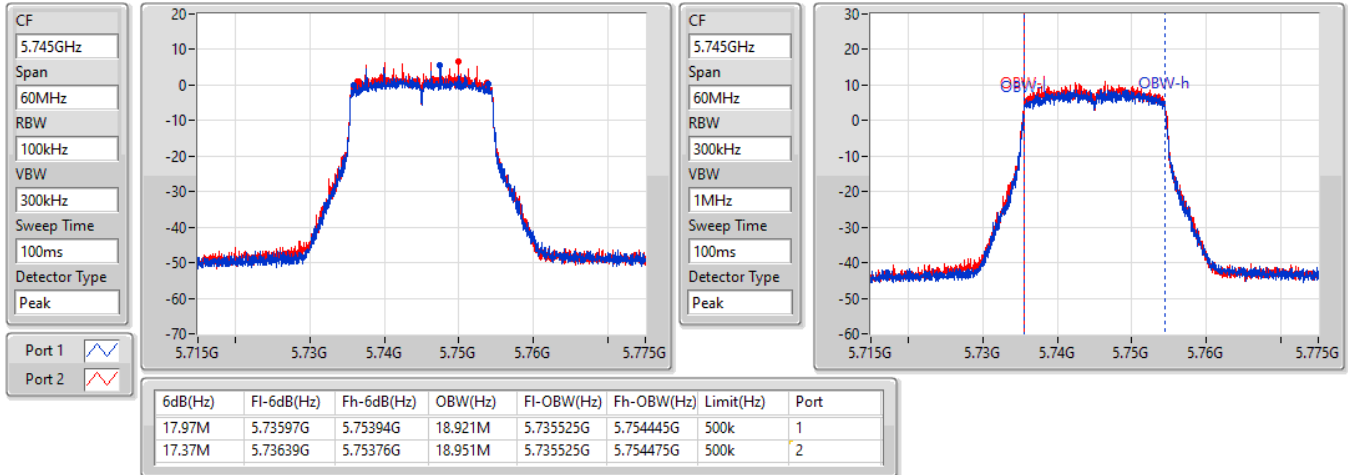

802.11ax HEW20_Nss1,(MCS0)_2TX
EBW
5240MHz

12/09/2022

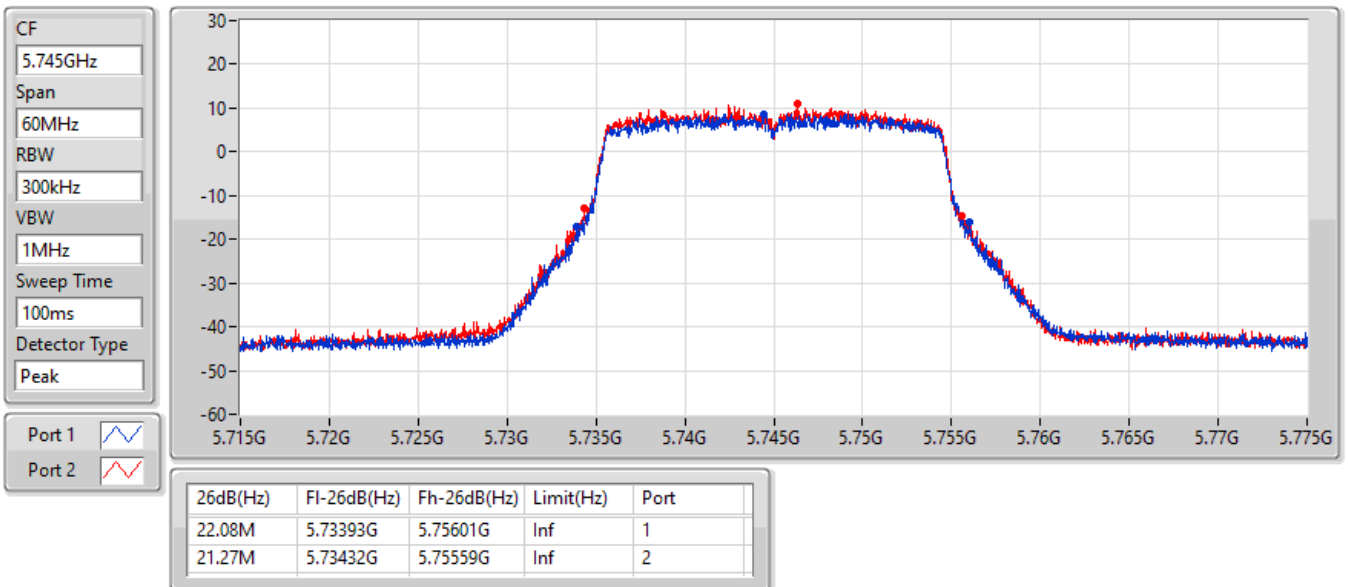


802.11ax HEW20_Nss1,(MCS0)_2TX
EBW
5745MHz

07/09/2022

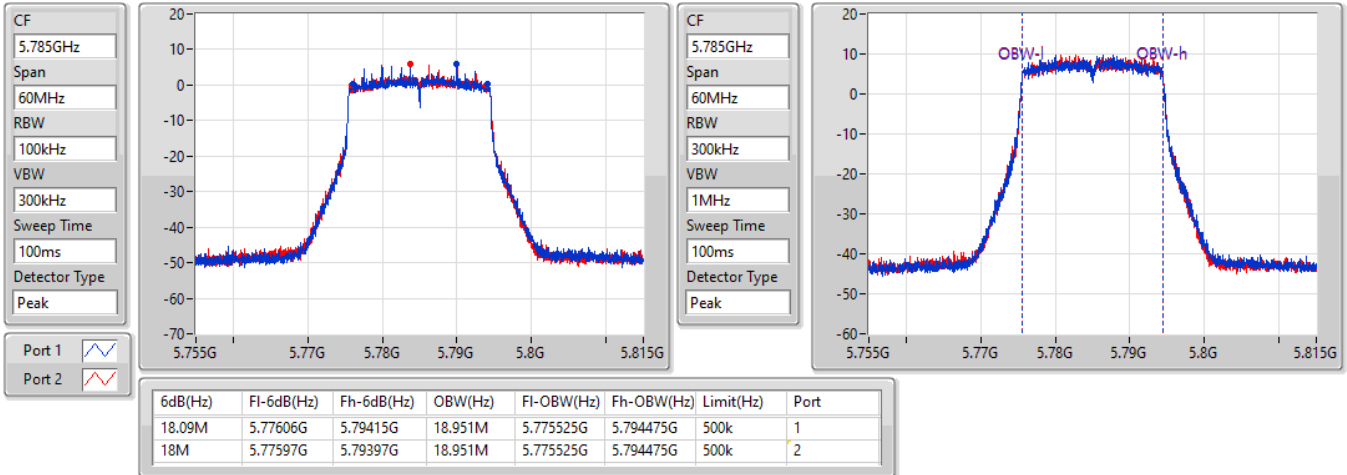

802.11ax HEW20_Nss1,(MCS0)_2TX
EBW
5745MHz

07/09/2022

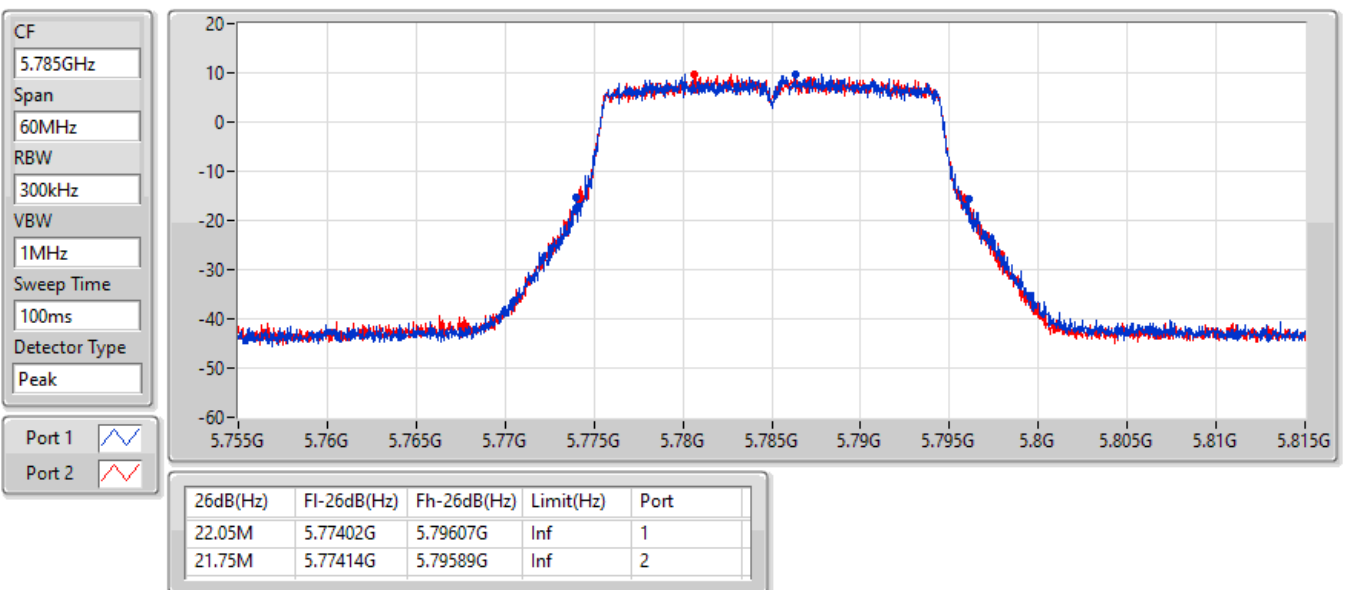


802.11ax HEW20_Nss1,(MCS0)_2TX
EBW
5785MHz

07/09/2022

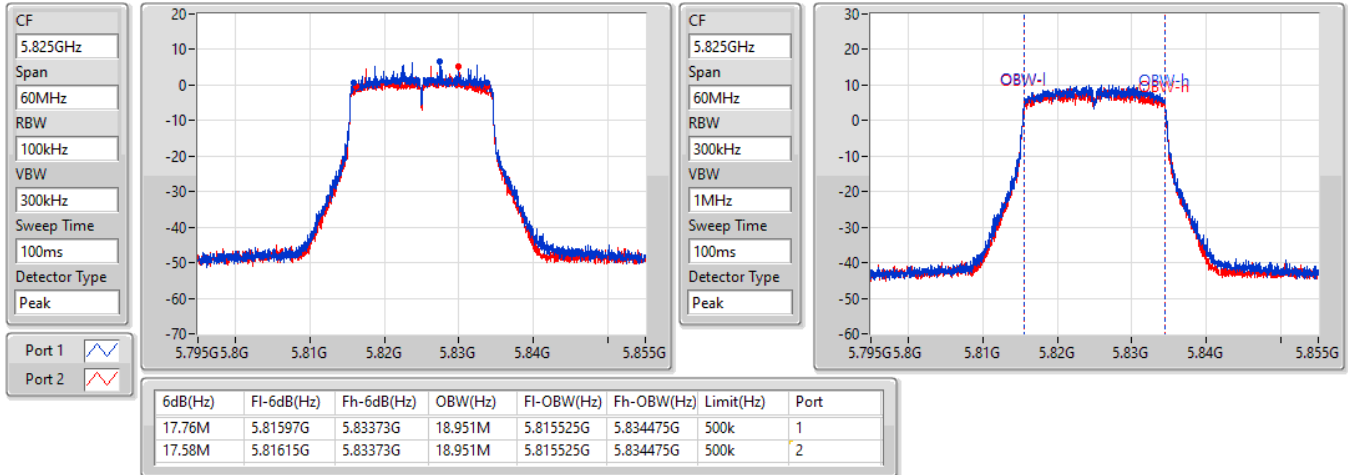

802.11ax HEW20_Nss1,(MCS0)_2TX
EBW
5785MHz

07/09/2022

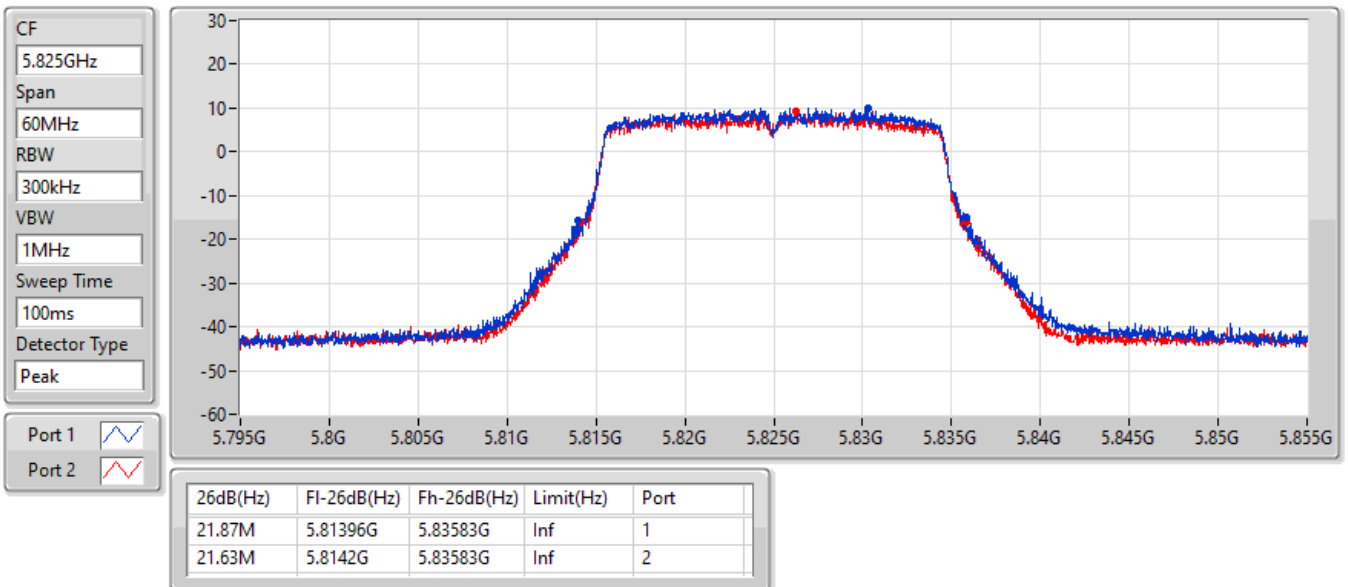


802.11ax HEW20_Nss1,(MCS0)_2TX
EBW
5825MHz

07/09/2022

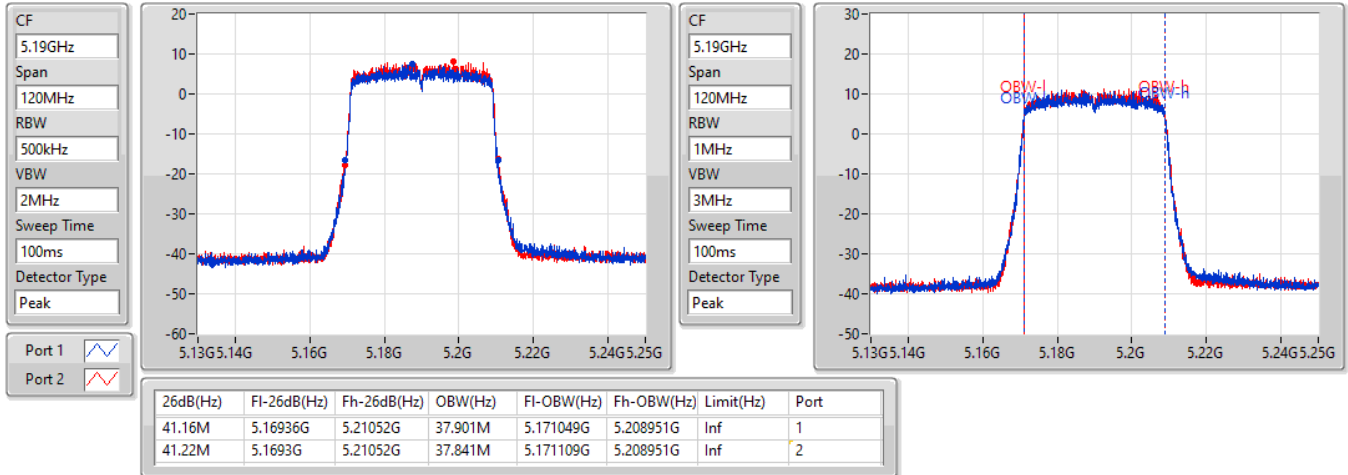

802.11ax HEW20_Nss1,(MCS0)_2TX
EBW
5825MHz

07/09/2022

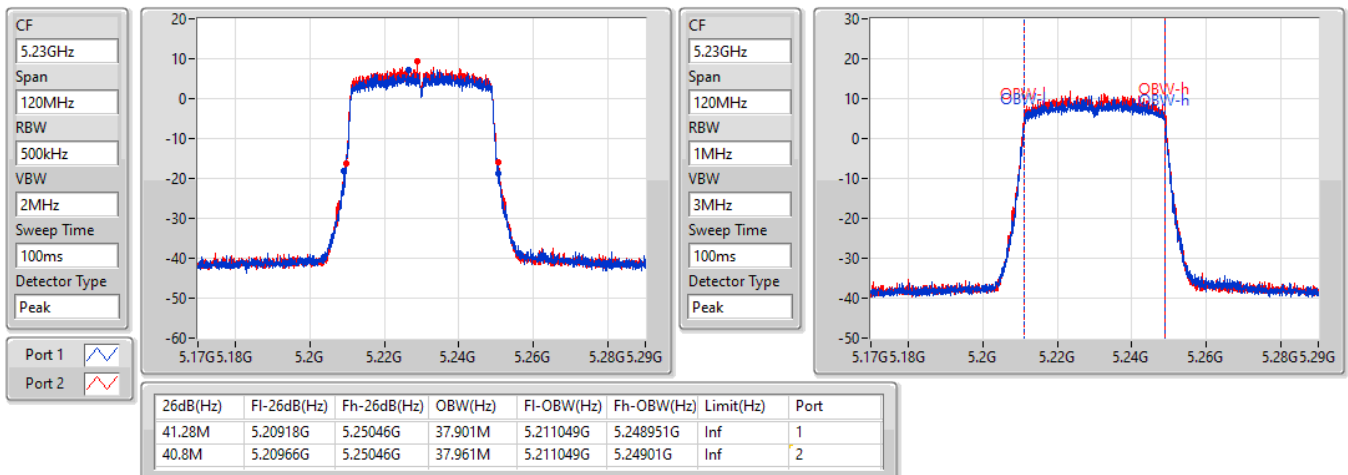


802.11ax HEW40_Nss1,(MCS0)_2TX
EBW
5190MHz

12/09/2022

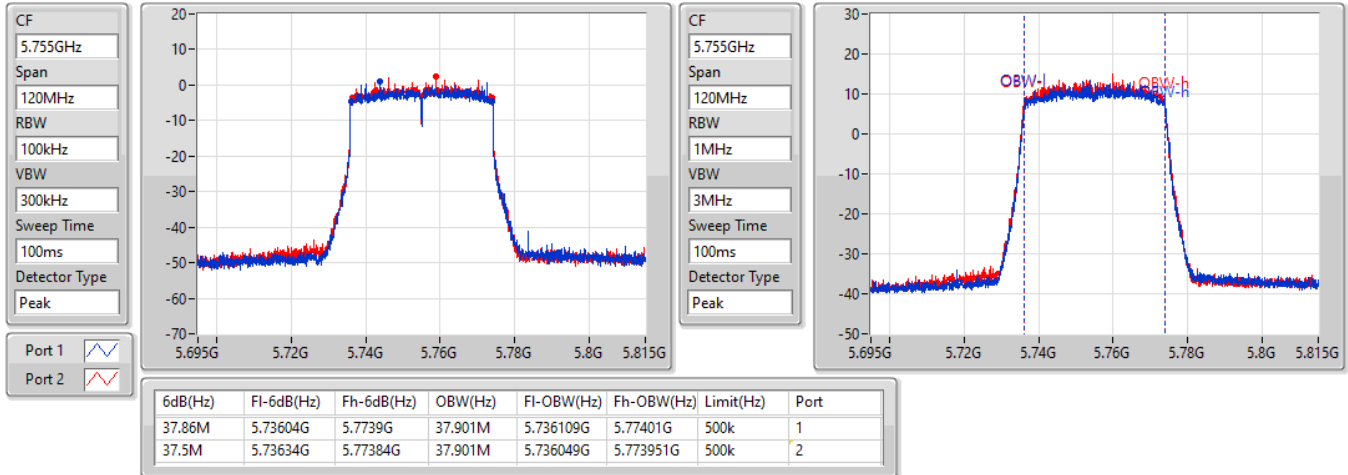

802.11ax HEW40_Nss1,(MCS0)_2TX
EBW
5230MHz

12/09/2022

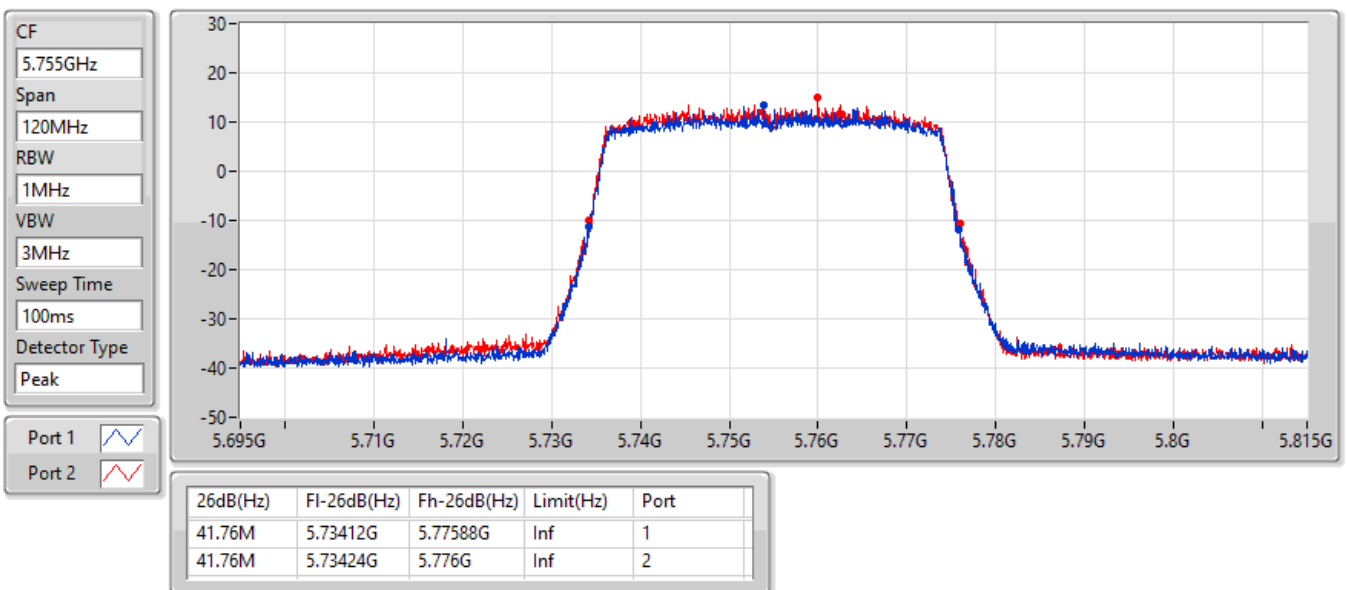


802.11ax HEW40_Nss1,(MCS0)_2TX
EBW
5755MHz

07/09/2022

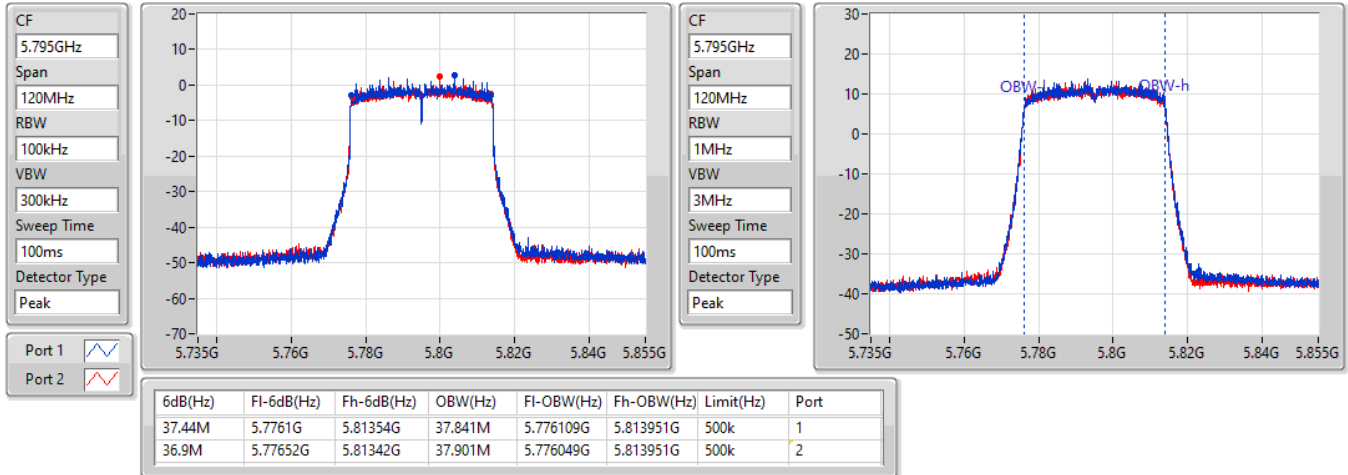

802.11ax HEW40_Nss1,(MCS0)_2TX
EBW
5755MHz

07/09/2022

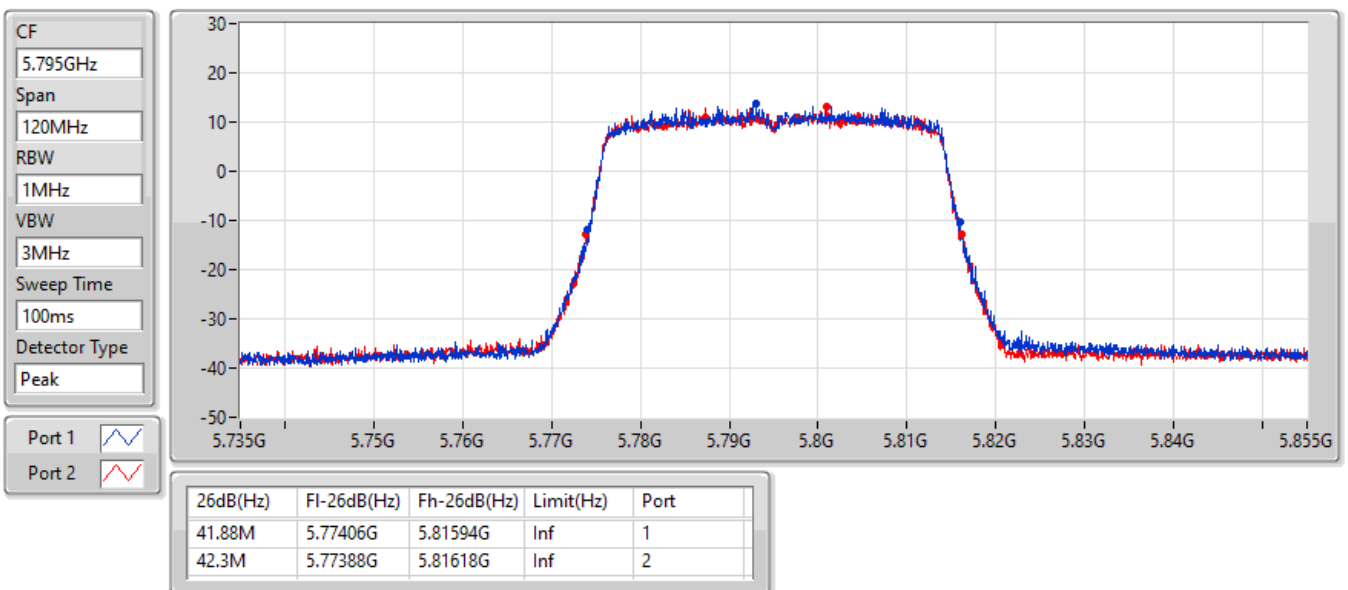


802.11ax HEW40_Nss1,(MCS0)_2TX
EBW
5795MHz

07/09/2022

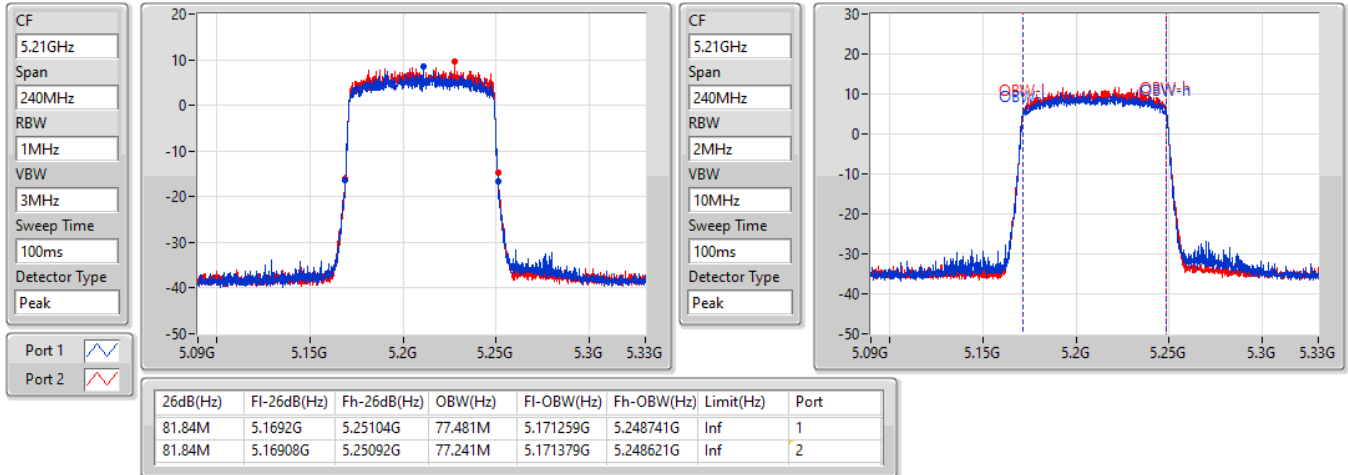

802.11ax HEW40_Nss1,(MCS0)_2TX
EBW
5795MHz

07/09/2022

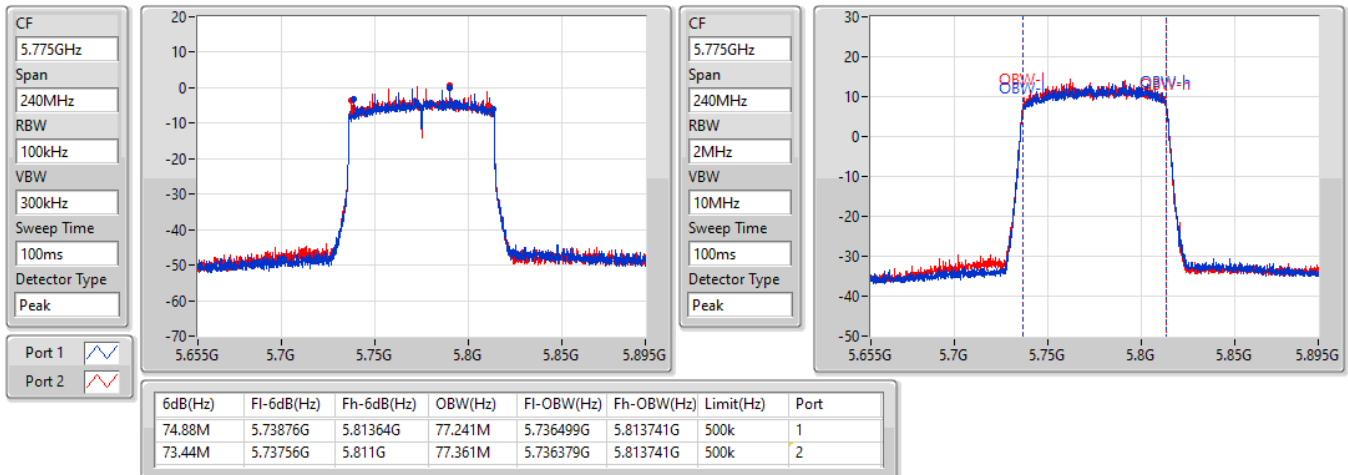


802.11ax HEW80_Nss1,(MCS0)_2TX
EBW
5210MHz

12/09/2022


802.11ax HEW80_Nss1,(MCS0)_2TX
EBW
5775MHz

07/09/2022

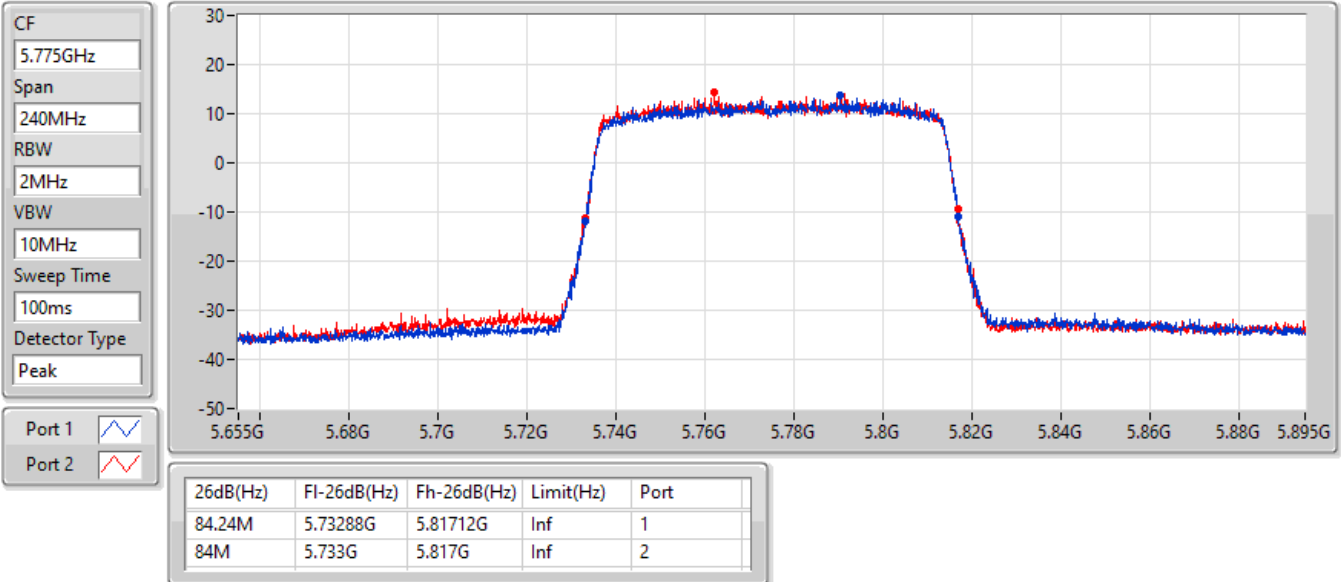


802.11ax HEW80_Nss1,(MCS0)_2TX

EBW

5775MHz

07/09/2022



**Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	21.78M	18.953M	19M0D1D	21.48M	18.903M
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	41.4M	37.948M	37M9D1D	40.86M	37.835M
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	82.44M	77.314M	77M3D1D	81.96M	77.122M
5.725-5.85GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	18.51M	18.931M	18M9D1D	17.61M	18.915M
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	37.92M	37.921M	37M9D1D	37.2M	37.809M
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	77.52M	77.269M	77M3D1D	77.4M	77.237M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Min-OBW = Minimum 99% occupied bandwidth

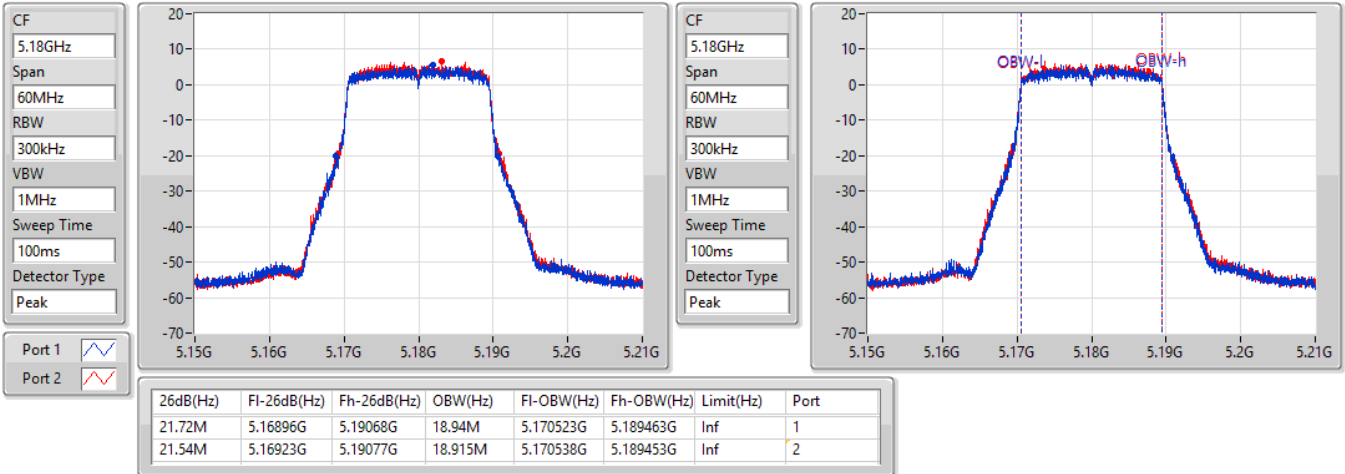
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	21.72M	18.94M	21.54M	18.915M
5200MHz	Pass	Inf	21.57M	18.947M	21.63M	18.903M
5240MHz	Pass	Inf	21.48M	18.953M	21.78M	18.934M
5745MHz	Pass	500k	18.15M	18.931M	18.3M	18.915M
5785MHz	Pass	500k	18.18M	18.931M	17.61M	18.924M
5825MHz	Pass	500k	18.51M	18.929M	18.36M	18.922M
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	41.1M	37.872M	40.86M	37.835M
5230MHz	Pass	Inf	41.22M	37.948M	41.4M	37.836M
5755MHz	Pass	500k	37.86M	37.921M	37.2M	37.917M
5795MHz	Pass	500k	37.44M	37.809M	37.92M	37.874M
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	82.44M	77.314M	81.96M	77.122M
5775MHz	Pass	500k	77.4M	77.237M	77.52M	77.269M

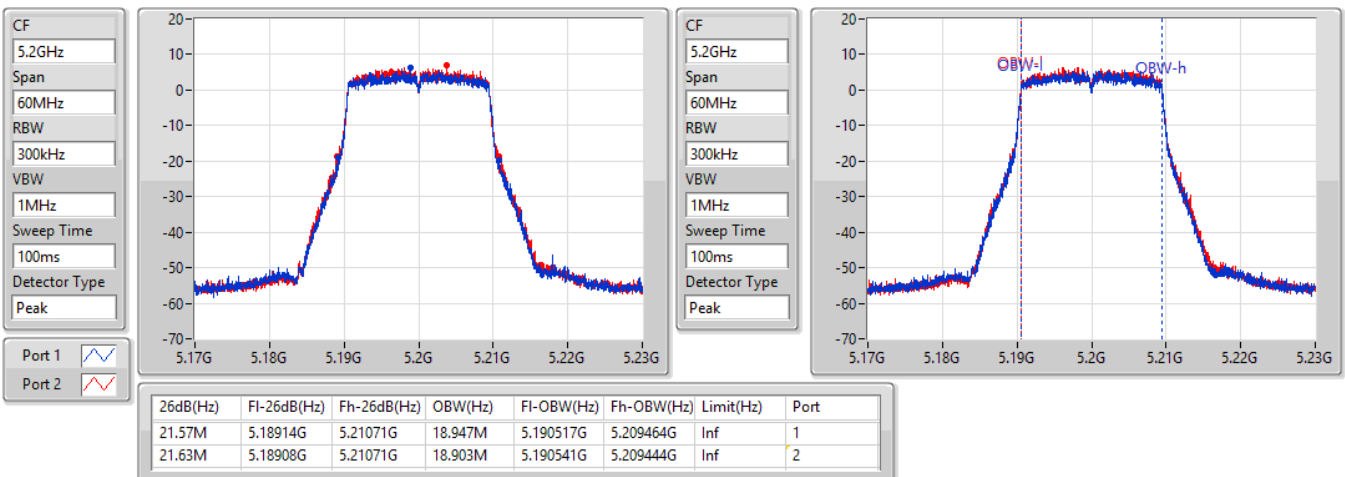
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port X 99% occupied bandwidth

802.11ax HEW20-BF_Nss1,(MCS0)_2TX
EBW
5180MHz

03/10/2022

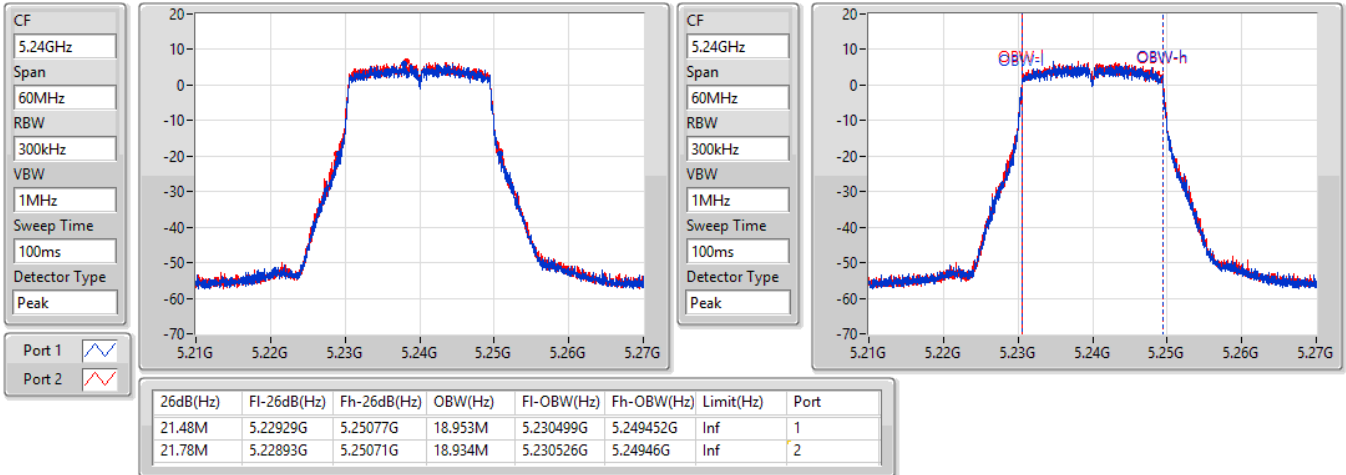

802.11ax HEW20-BF_Nss1,(MCS0)_2TX
EBW
5200MHz

03/10/2022

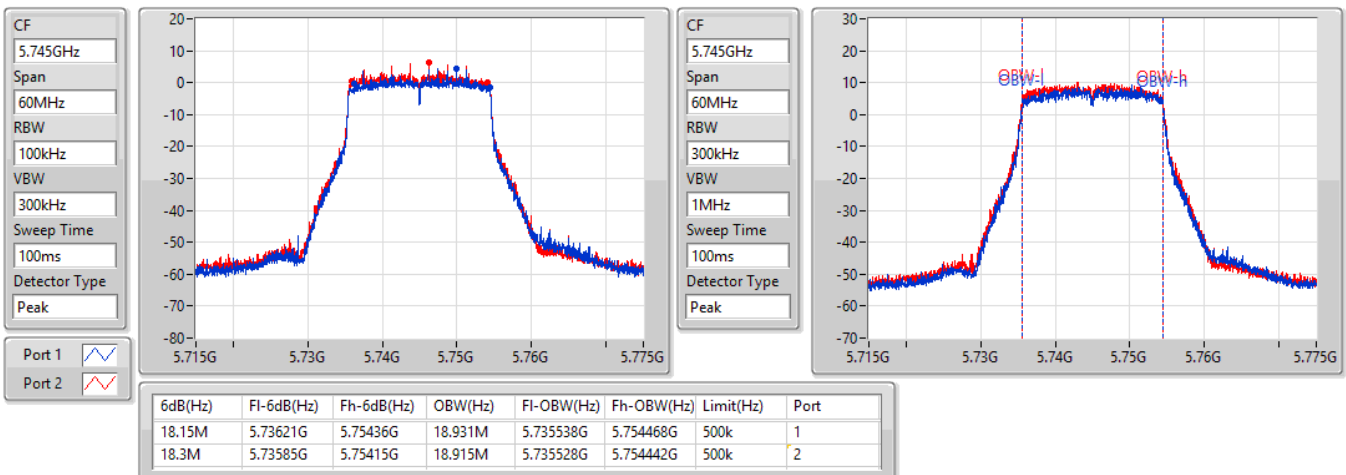


802.11ax HEW20-BF_Nss1,(MCS0)_2TX
EBW
5240MHz

03/10/2022


802.11ax HEW20-BF_Nss1,(MCS0)_2TX
EBW
5745MHz

03/10/2022

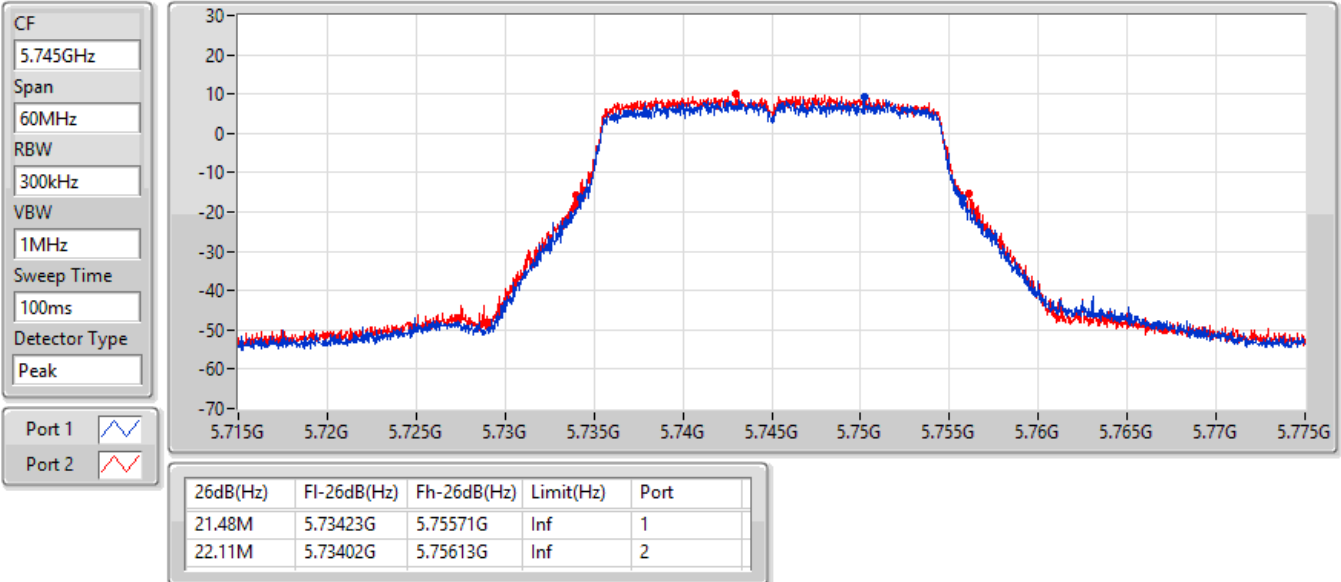


802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

5745MHz

03/10/2022

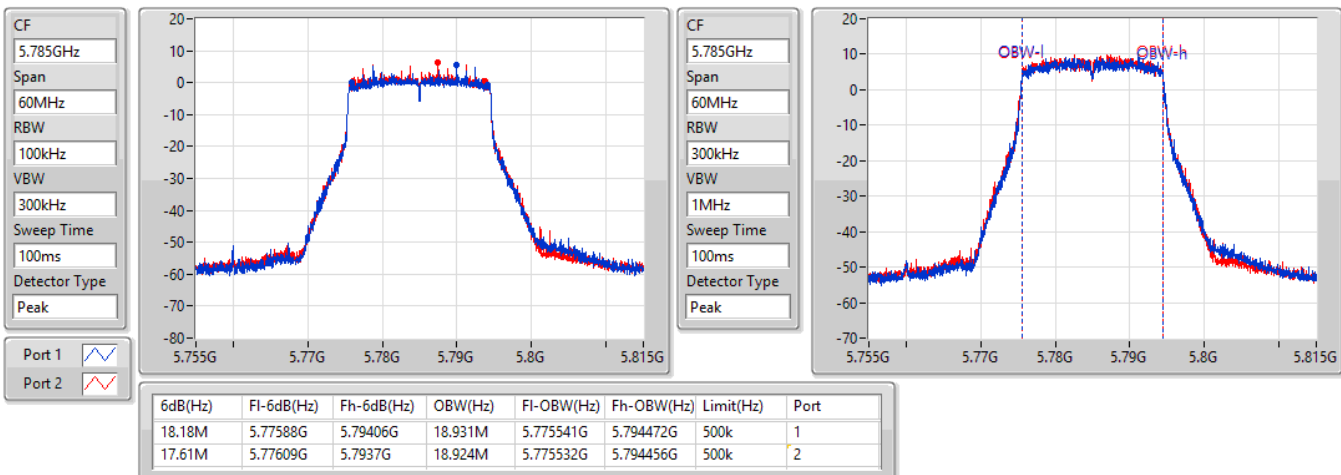


802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

5785MHz

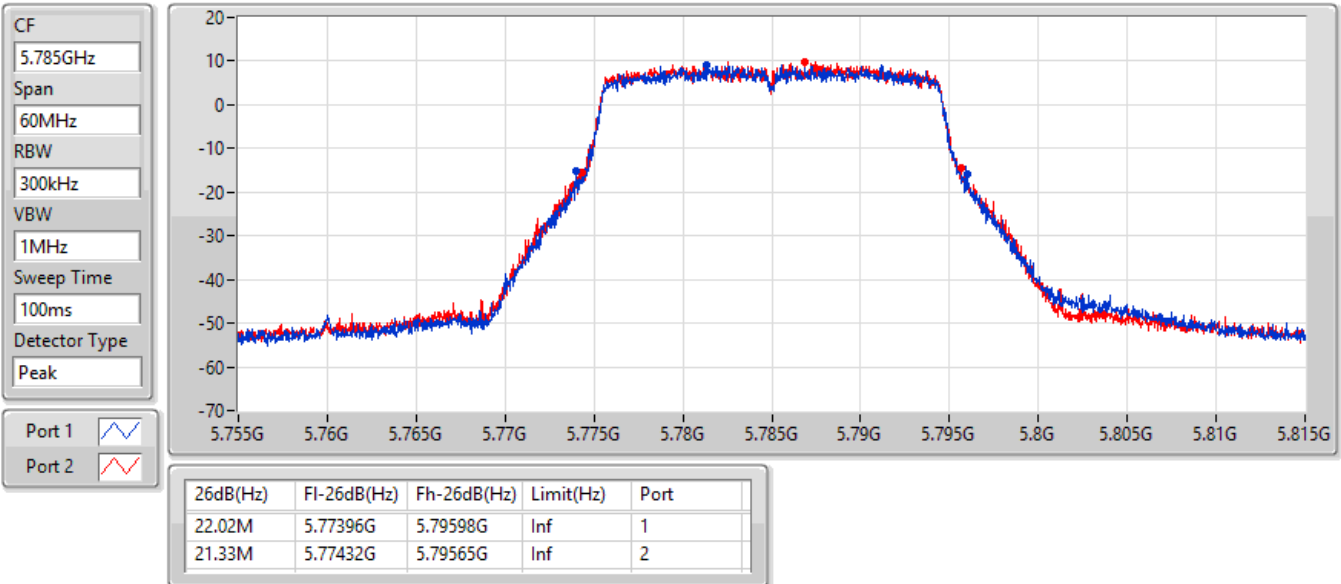
03/10/2022



802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW
5785MHz

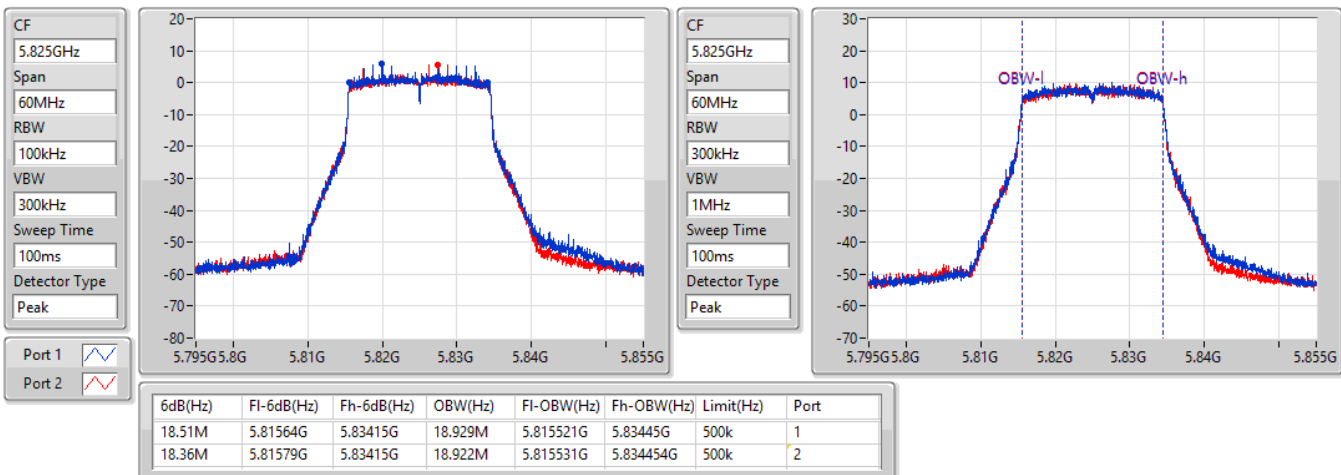
03/10/2022



802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW
5825MHz

03/10/2022

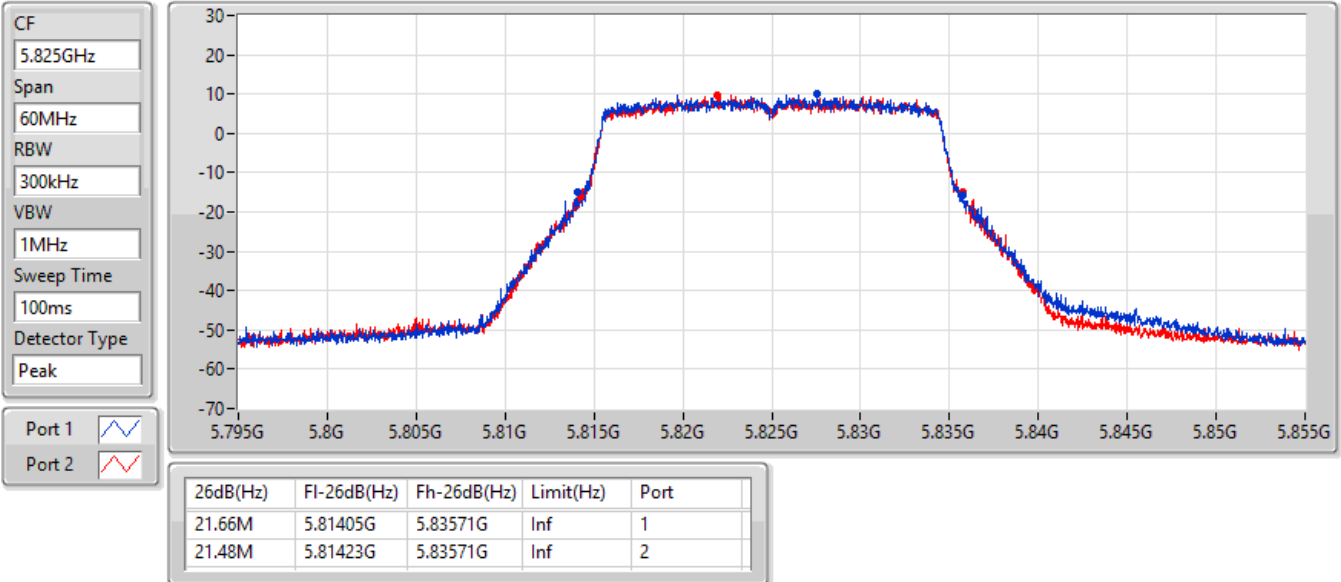


802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

5825MHz

03/10/2022

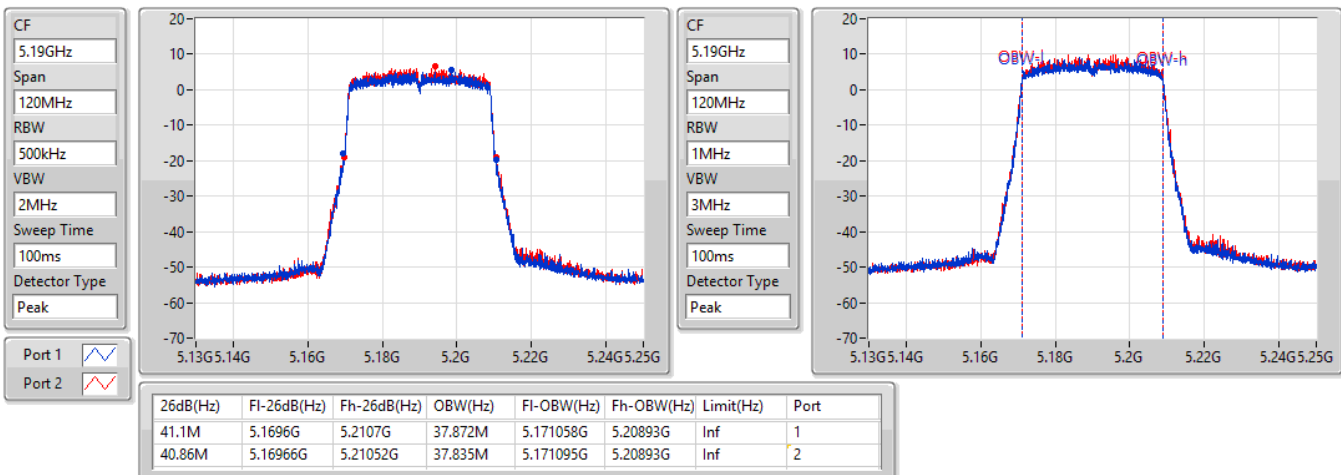


802.11ax HEW40-BF_Nss1,(MCS0)_2TX

EBW

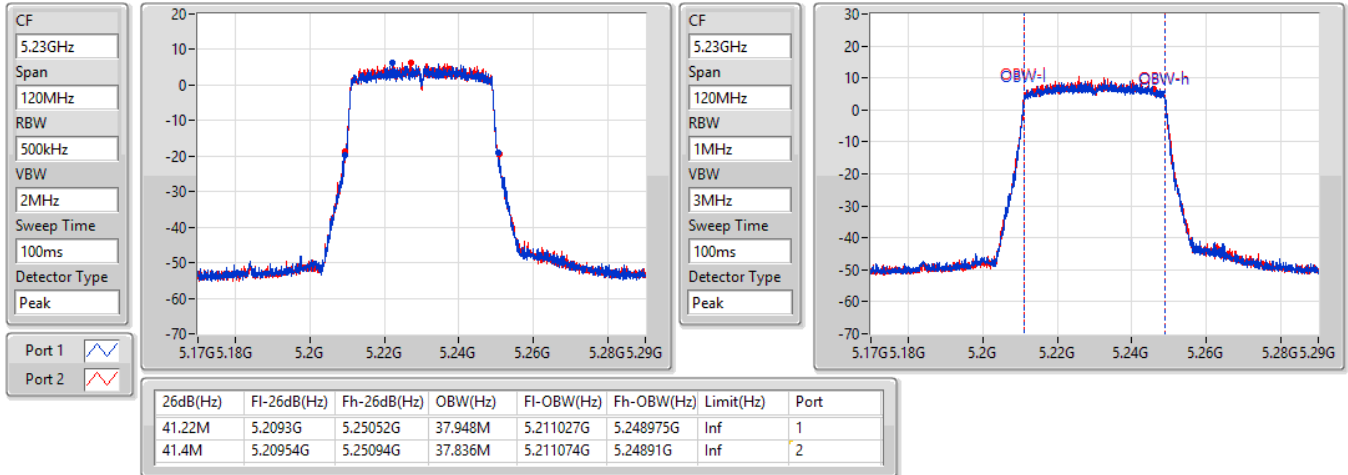
5190MHz

03/10/2022

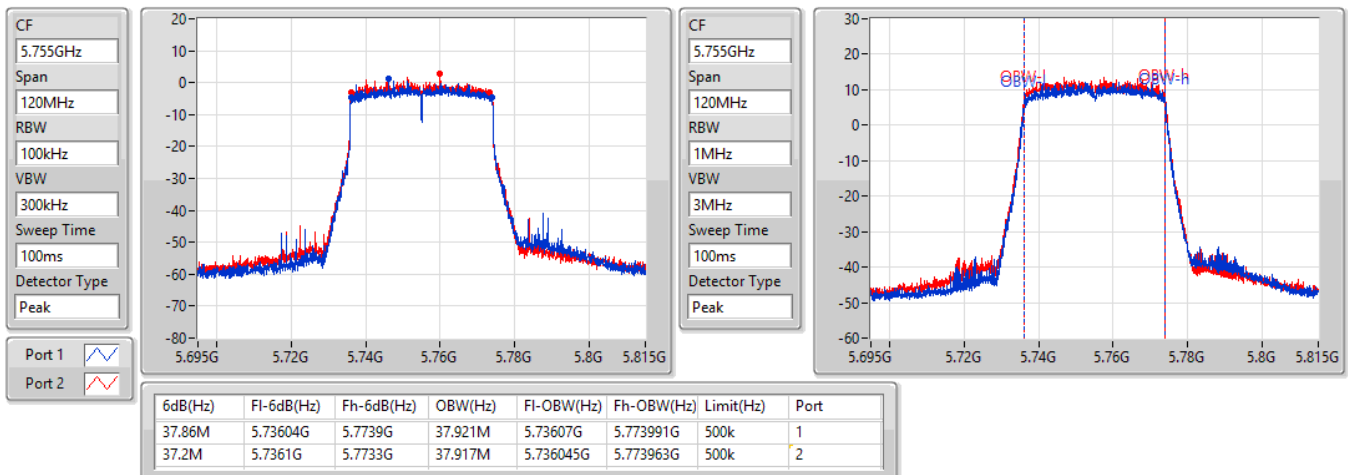


802.11ax HEW40-BF_Nss1,(MCS0)_2TX
EBW
5230MHz

03/10/2022


802.11ax HEW40-BF_Nss1,(MCS0)_2TX
EBW
5755MHz

03/10/2022

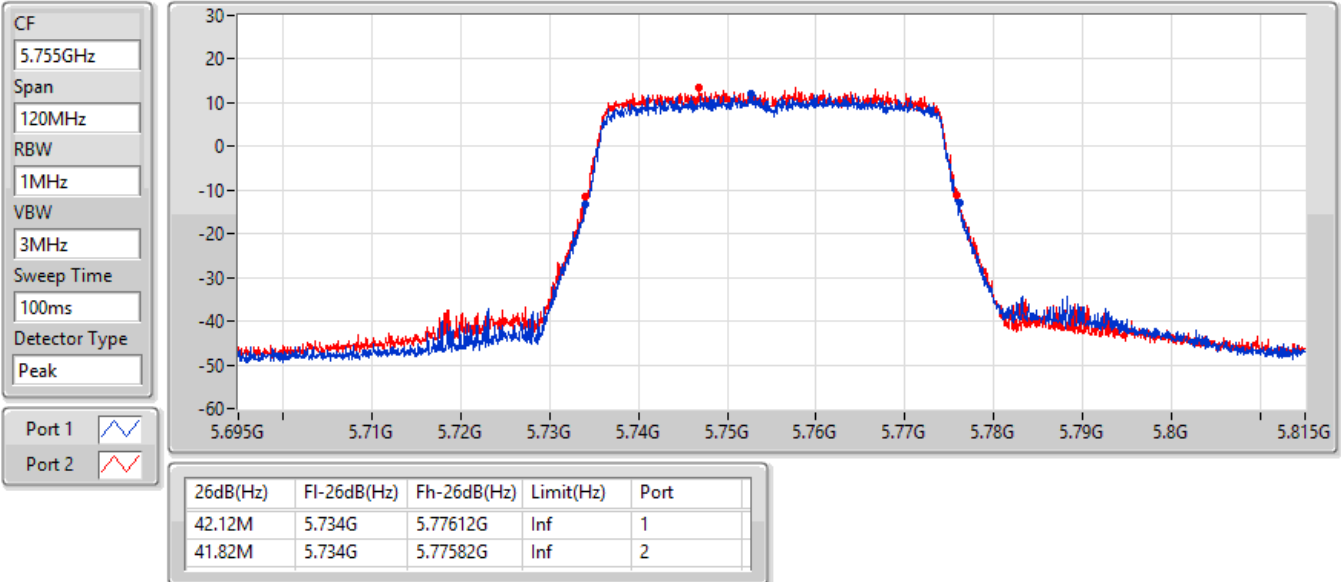


802.11ax HEW40-BF_Nss1,(MCS0)_2TX

EBW

5755MHz

03/10/2022

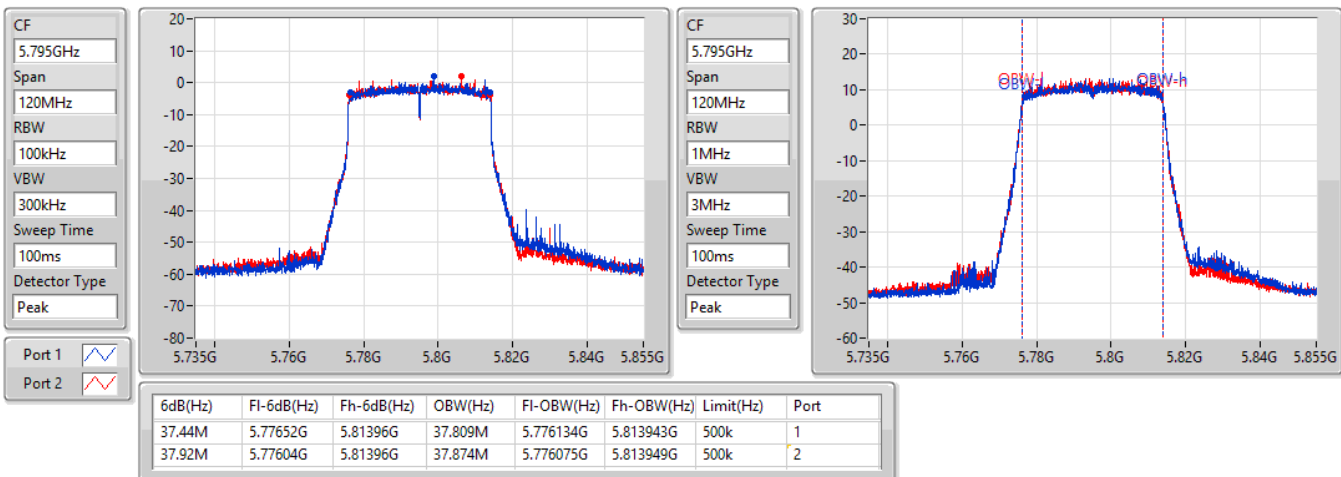


802.11ax HEW40-BF_Nss1,(MCS0)_2TX

EBW

5795MHz

03/10/2022

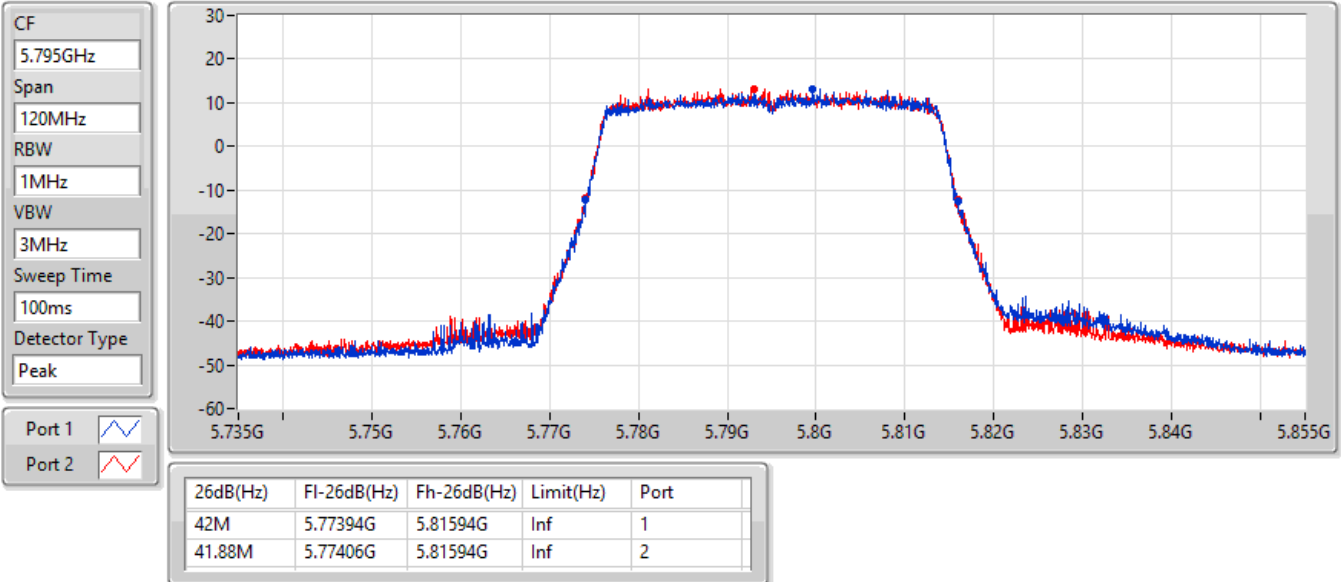


802.11ax HEW40-BF_Nss1,(MCS0)_2TX

EBW

5795MHz

03/10/2022

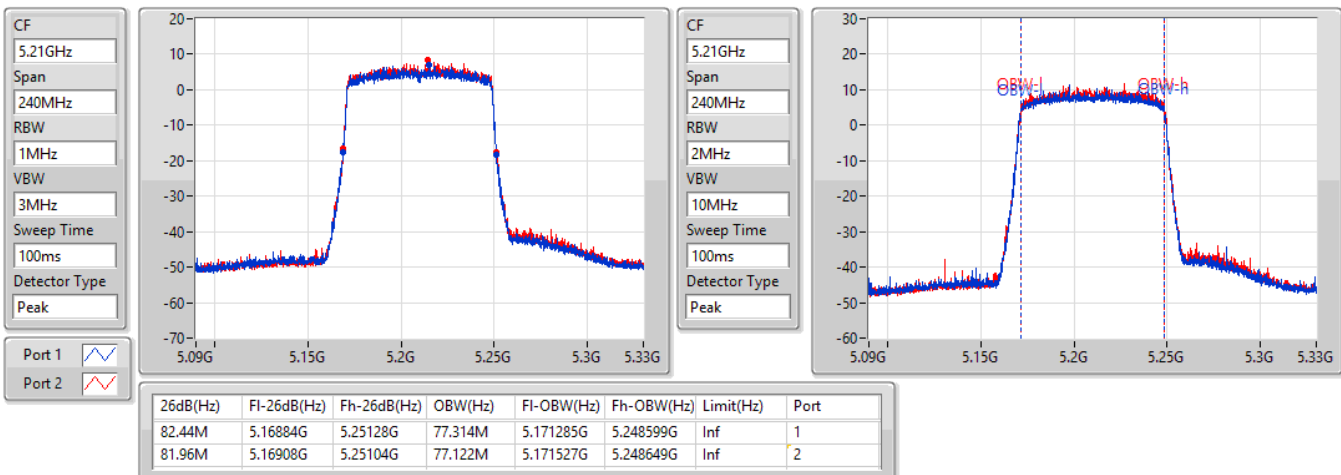


802.11ax HEW80-BF_Nss1,(MCS0)_2TX

EBW

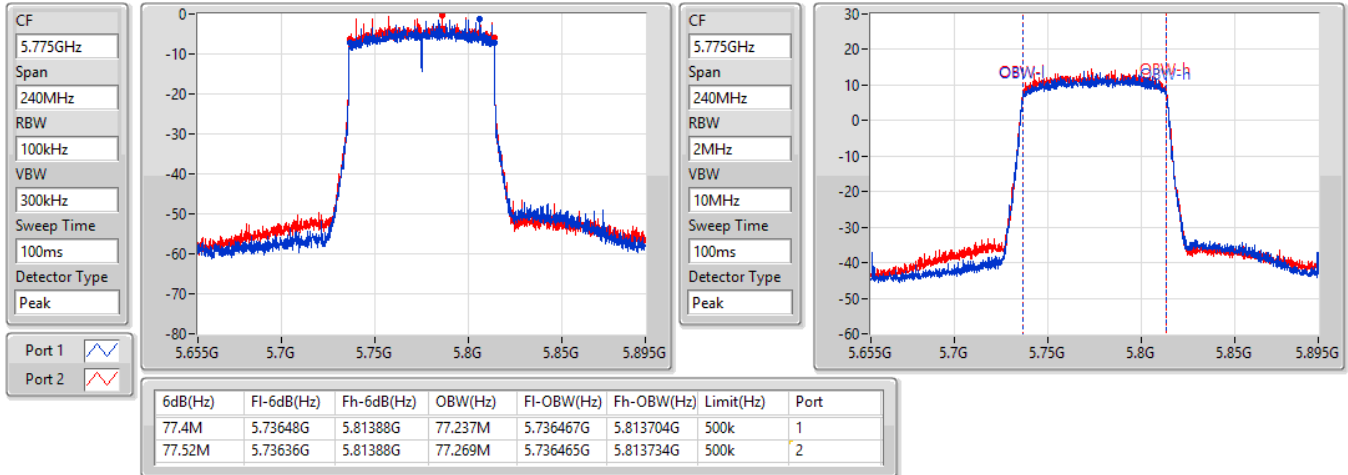
5210MHz

03/10/2022

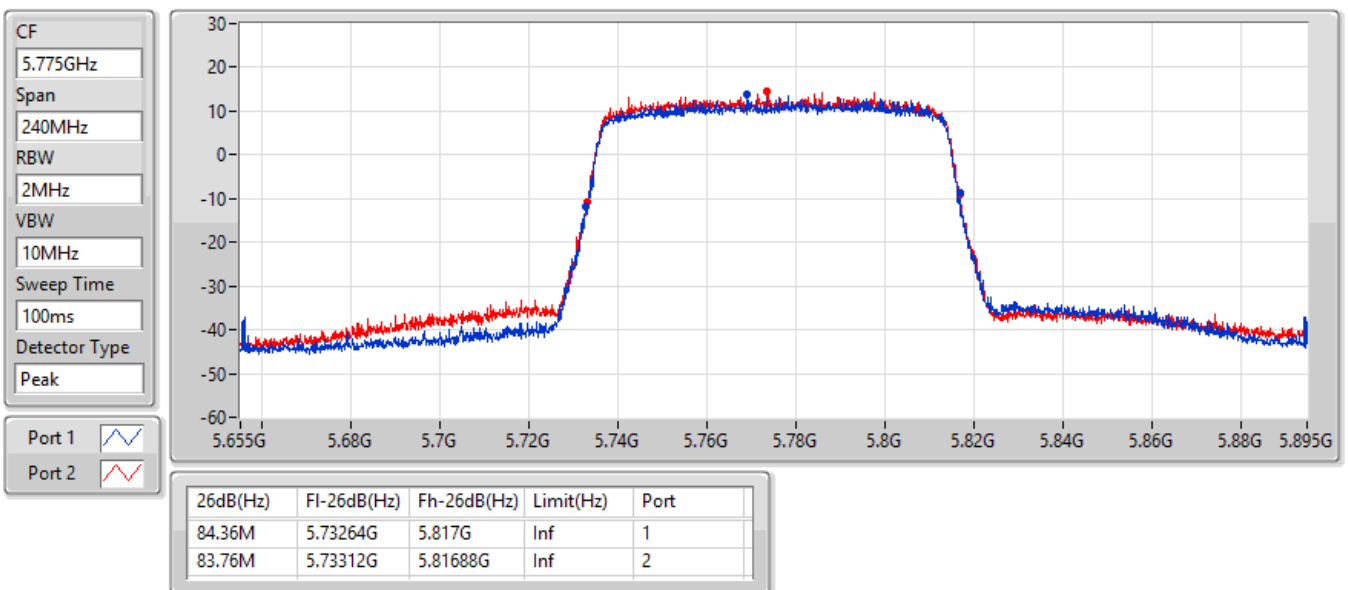


802.11ax HEW80-BF_Nss1,(MCS0)_2TX
EBW
5775MHz

03/10/2022


802.11ax HEW80-BF_Nss1,(MCS0)_2TX
EBW
5775MHz

03/10/2022





EBW_R3 + Antenna set 1 for UNII 1 + Antenna set 2 for UNII 3_
Non beamforming mode

Appendix B.5

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	21.18M	16.699M	16M7D1D	20.49M	16.627M
802.11ax HEW20_Nss1,(MCS0)_4TX	22.17M	19.16M	19M2D1D	21.75M	19.104M
802.11ax HEW40_Nss1,(MCS0)_4TX	41.22M	38.035M	38M0D1D	40.2M	37.683M
802.11ax HEW80_Nss1,(MCS0)_4TX	82.32M	77.314M	77M3D1D	81.72M	77.182M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	16.35M	25.247M	25M2D1D	16.29M	21.469M
802.11ax HEW20_Nss1,(MCS0)_4TX	19.02M	27.166M	27M2D1D	18.84M	22.369M
802.11ax HEW40_Nss1,(MCS0)_4TX	37.86M	47.427M	47M4D1D	36.6M	38.275M
802.11ax HEW80_Nss1,(MCS0)_4TX	77.52M	77.659M	77M7D1D	76.56M	77.546M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Min-OBW = Minimum 99% occupied bandwidth



EBW_R3 + Antenna set 1 for UNII 1 + Antenna set 2 for UNII 3
Non beamforming mode

Appendix B.5

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	20.91M	16.699M	20.73M	16.648M	20.7M	16.683M	20.73M	16.656M
5200MHz	Pass	Inf	20.67M	16.693M	21.06M	16.627M	21.18M	16.678M	20.61M	16.632M
5240MHz	Pass	Inf	20.55M	16.682M	20.49M	16.629M	20.7M	16.681M	20.67M	16.632M
5745MHz	Pass	500k	16.32M	23.328M	16.35M	24.408M	16.35M	23.898M	16.35M	24.018M
5785MHz	Pass	500k	16.32M	22.399M	16.35M	24.228M	16.35M	23.118M	16.32M	23.208M
5825MHz	Pass	500k	16.29M	21.799M	16.32M	22.969M	16.35M	21.469M	16.35M	25.247M
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	22.05M	19.114M	22.14M	19.123M	22.11M	19.142M	22.02M	19.129M
5200MHz	Pass	Inf	22.02M	19.16M	22.17M	19.138M	22.02M	19.129M	22.14M	19.125M
5240MHz	Pass	Inf	21.96M	19.113M	21.75M	19.145M	21.78M	19.13M	22.02M	19.104M
5745MHz	Pass	500k	19.02M	26.82M	18.84M	23.396M	18.93M	27.037M	18.93M	25.206M
5785MHz	Pass	500k	18.96M	23.508M	18.96M	24.828M	19.02M	24.318M	19.02M	24.648M
5825MHz	Pass	500k	18.84M	22.369M	19.02M	23.568M	19.02M	22.429M	18.99M	27.166M
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	40.62M	37.69M	40.2M	37.683M	40.38M	37.79M	40.5M	37.759M
5230MHz	Pass	Inf	40.86M	37.86M	40.62M	37.92M	40.8M	38.035M	41.22M	37.975M
5755MHz	Pass	500k	36.6M	38.324M	37.32M	38.275M	37.5M	38.306M	37.62M	38.396M
5795MHz	Pass	500k	37.68M	46.809M	37.38M	47.427M	37.74M	47.259M	37.86M	43.57M
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	82.2M	77.214M	81.72M	77.228M	81.84M	77.182M	82.32M	77.314M
5775MHz	Pass	500k	77.52M	77.659M	76.56M	77.579M	76.56M	77.624M	77.4M	77.546M

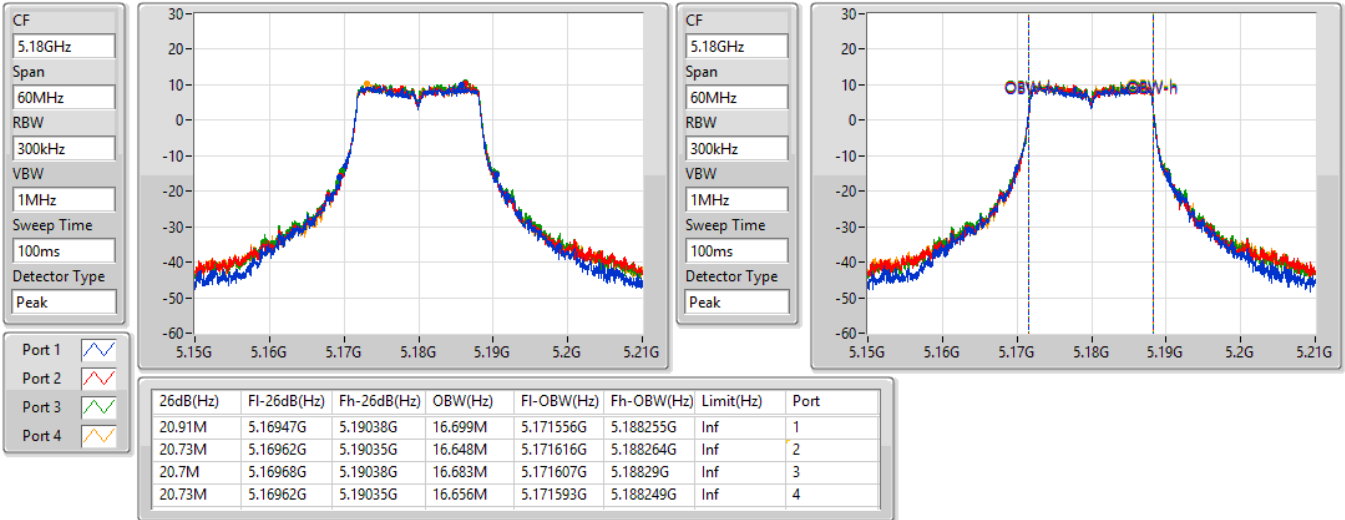
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port X 99% occupied bandwidth

802.11a_Nss1,(6Mbps)_4TX

EBW

5180MHz

05/08/2022

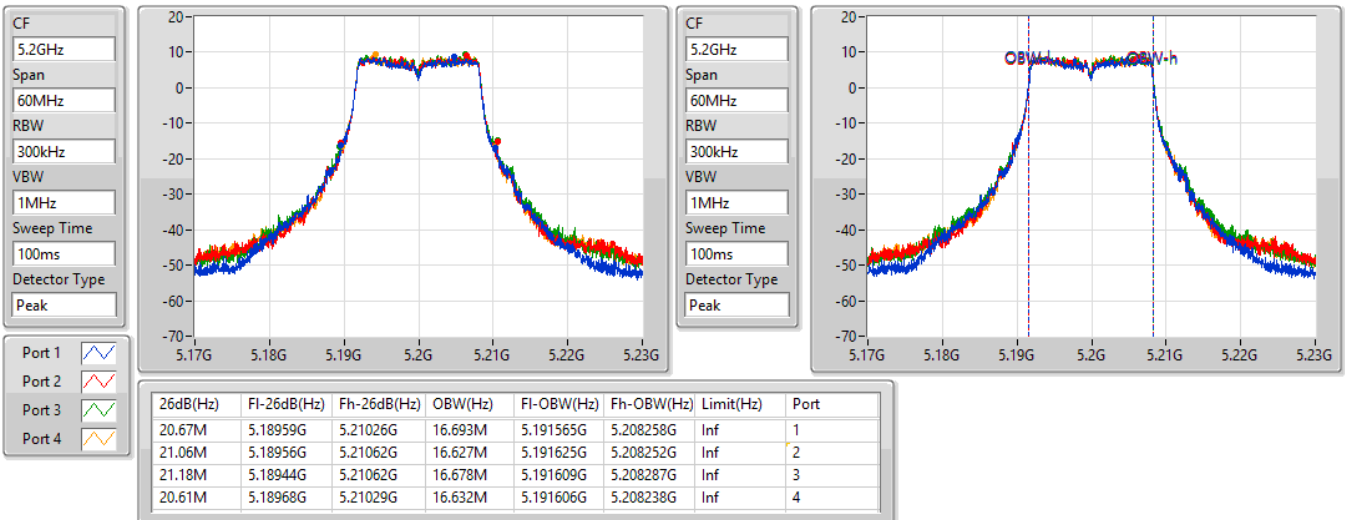


802.11a_Nss1,(6Mbps)_4TX

EBW

5200MHz

05/08/2022

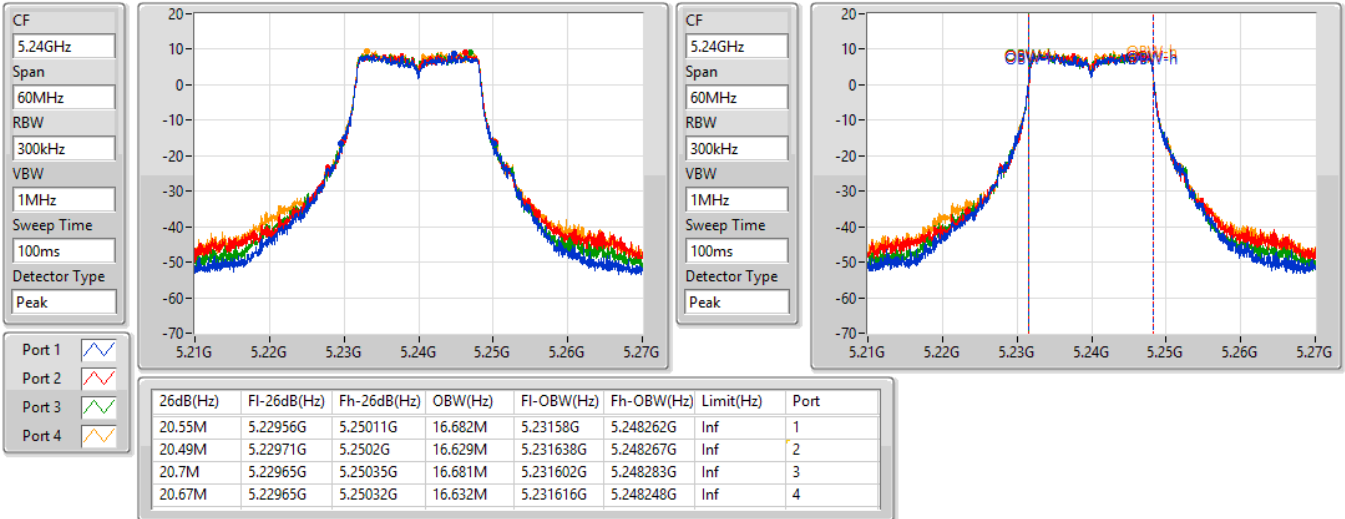


802.11a_Nss1,(6Mbps)_4TX

EBW

5240MHz

05/08/2022

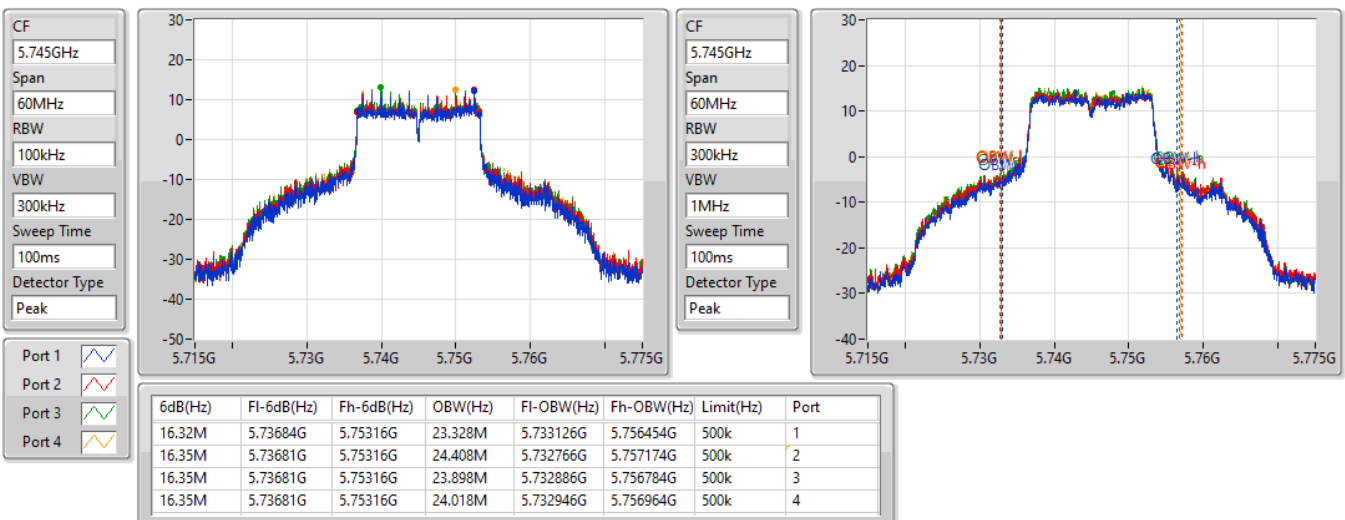


802.11a_Nss1,(6Mbps)_4TX

EBW

5745MHz

28/09/2022

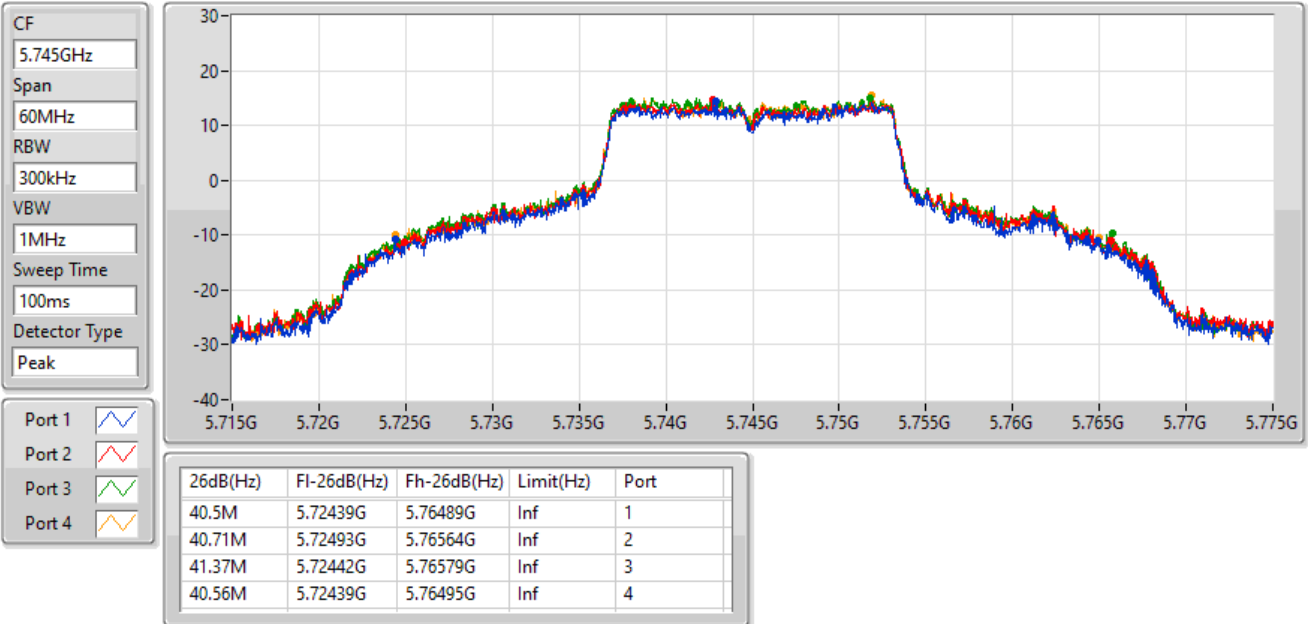


802.11a_Nss1,(6Mbps)_4TX

EBW

5745MHz

28/09/2022

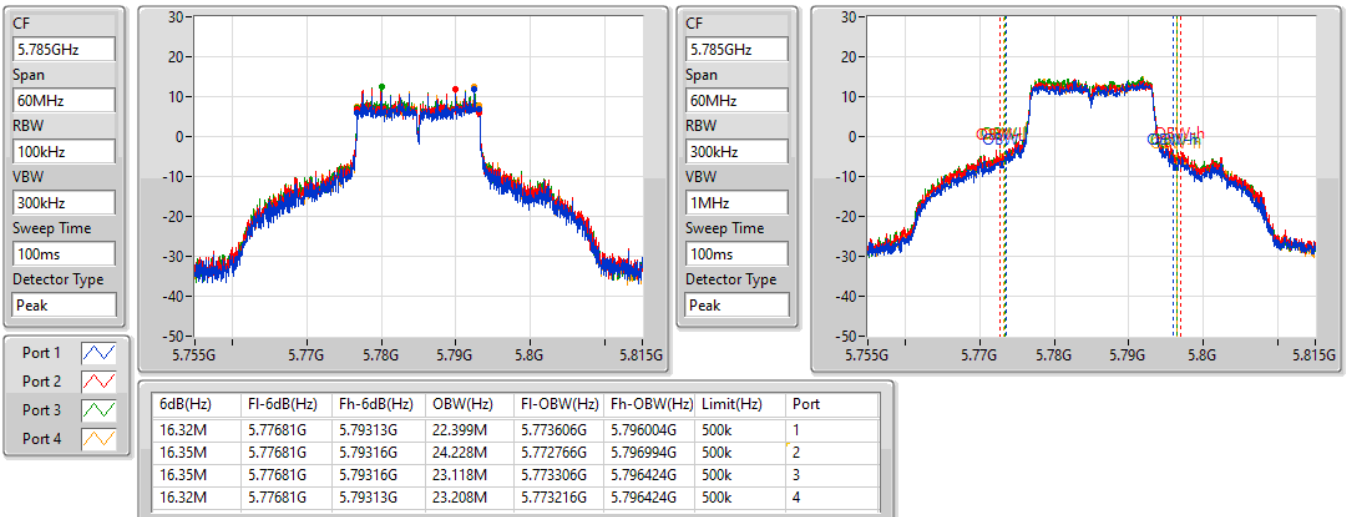


802.11a_Nss1,(6Mbps)_4TX

EBW

5785MHz

28/09/2022

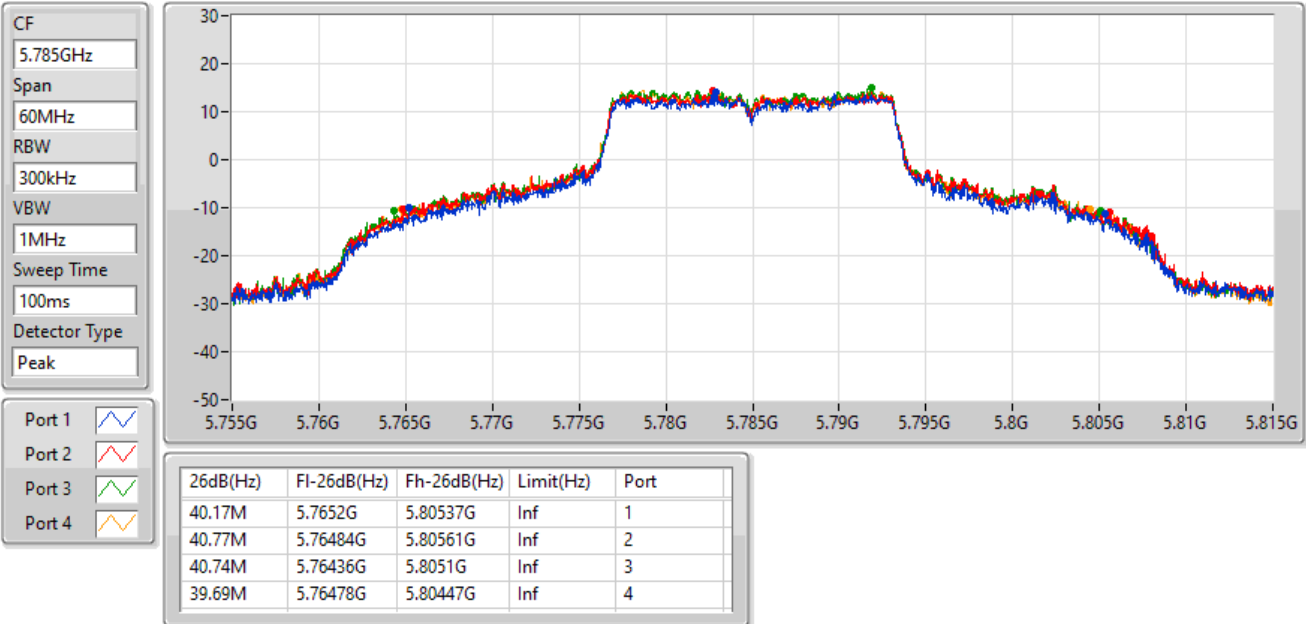


802.11a_Nss1,(6Mbps)_4TX

EBW

5785MHz

28/09/2022

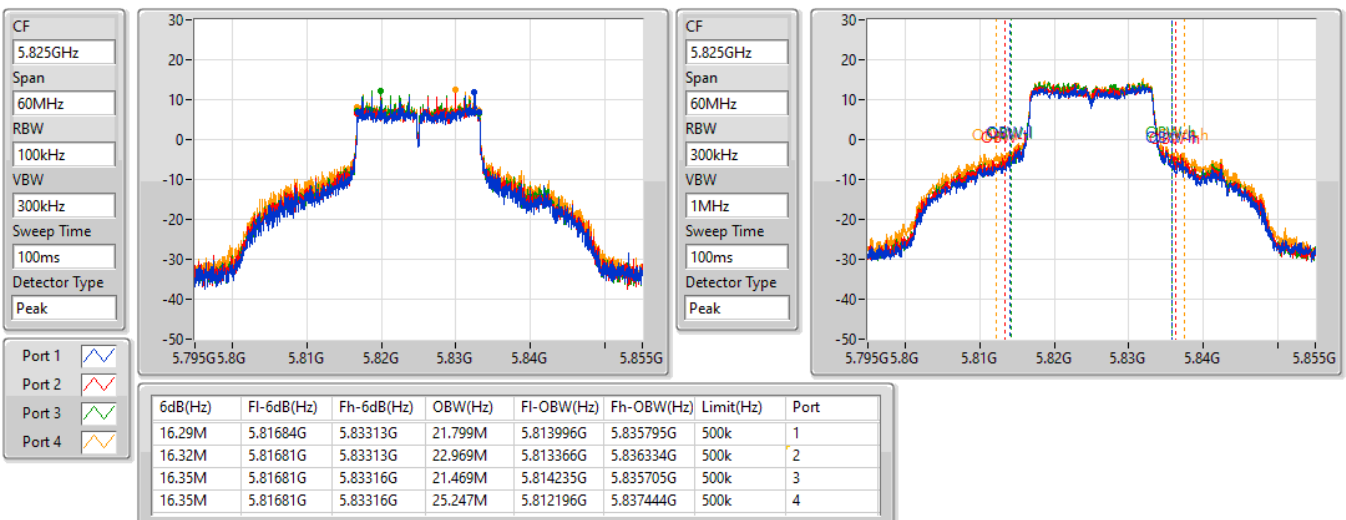


802.11a_Nss1,(6Mbps)_4TX

EBW

5825MHz

28/09/2022

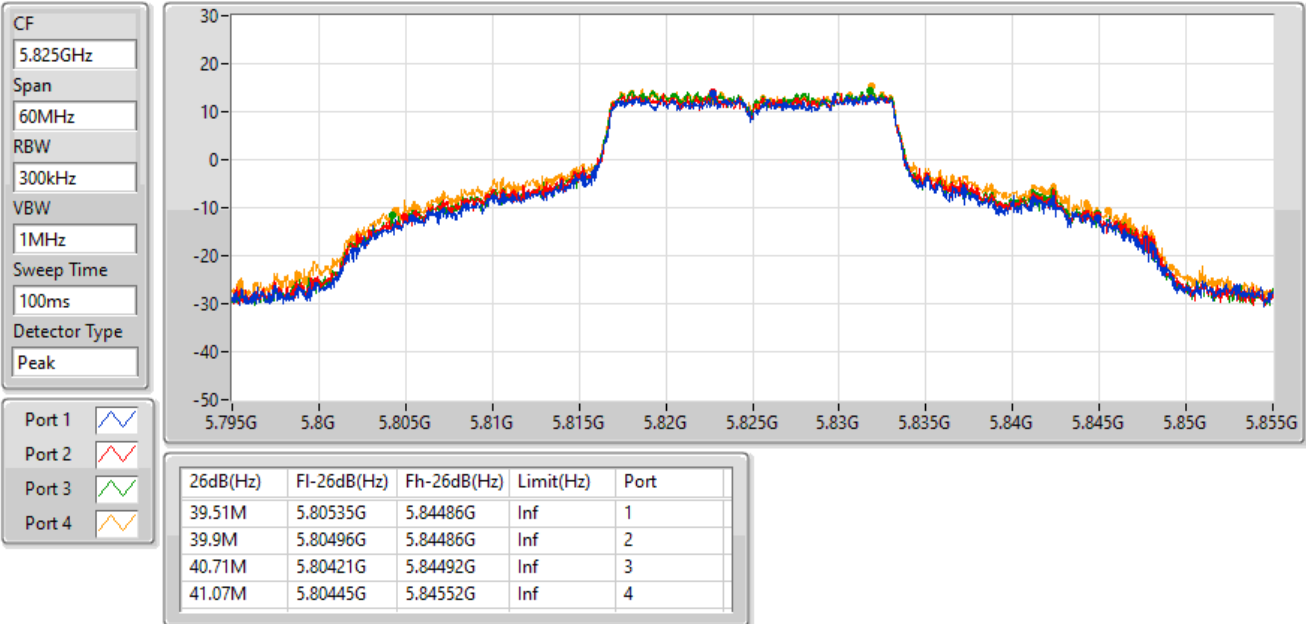


802.11a_Nss1,(6Mbps)_4TX

EBW

5825MHz

28/09/2022

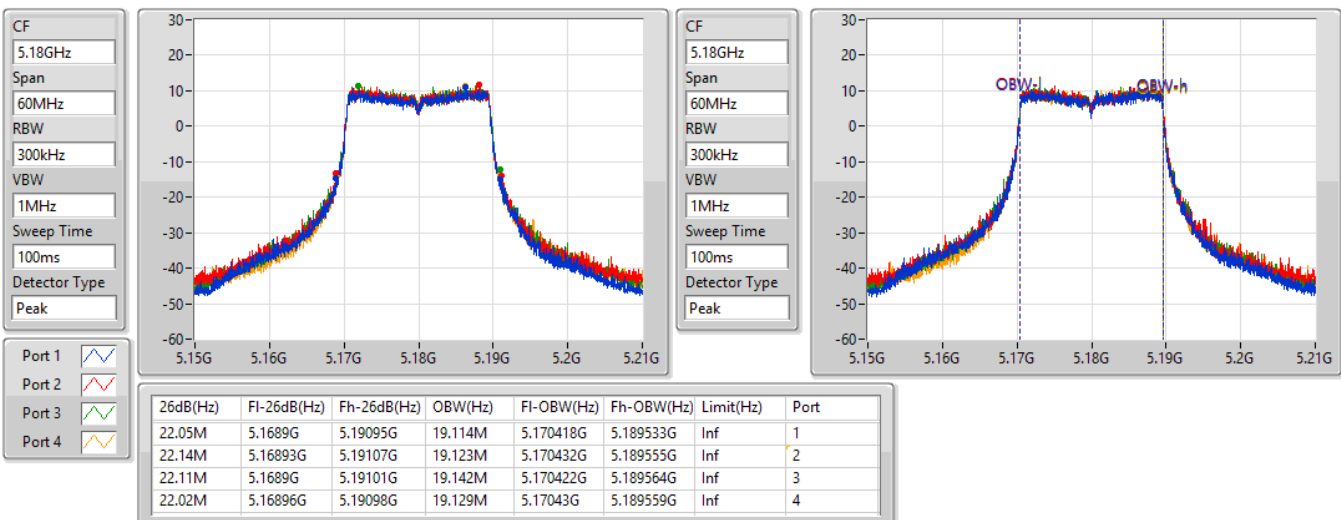


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5180MHz

06/08/2022

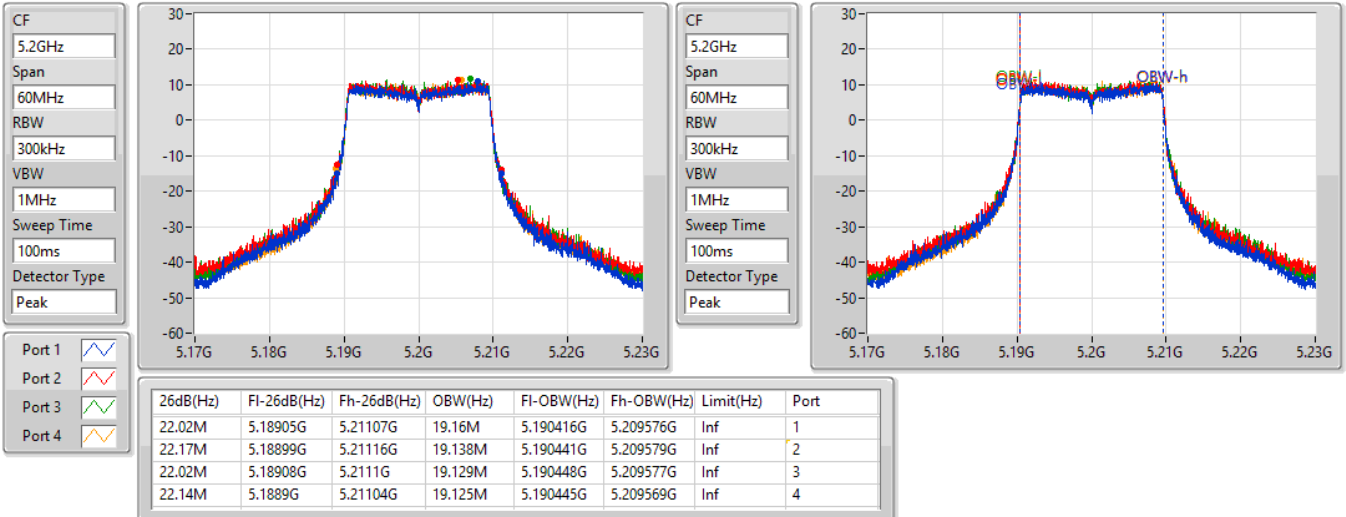


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5200MHz

06/08/2022

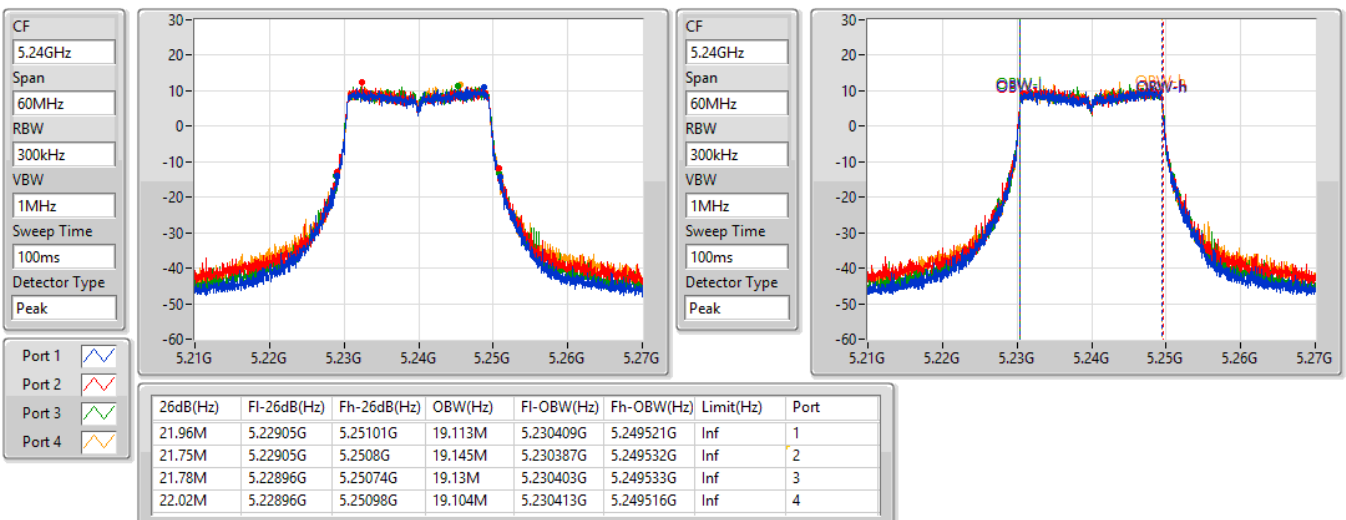


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5240MHz

06/08/2022

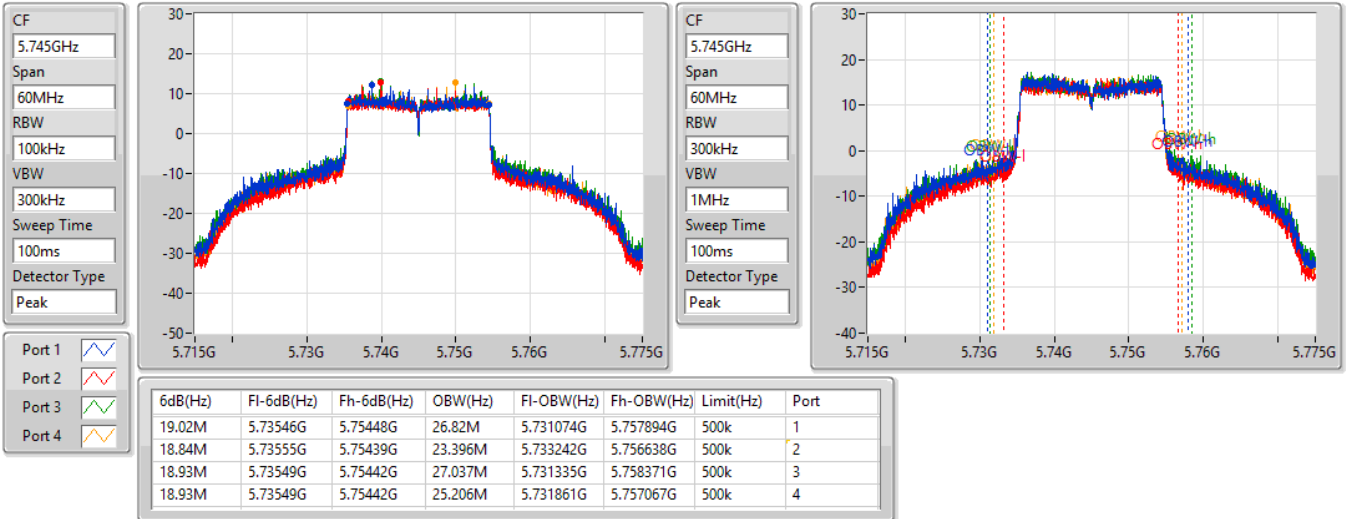


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5745MHz

06/08/2022

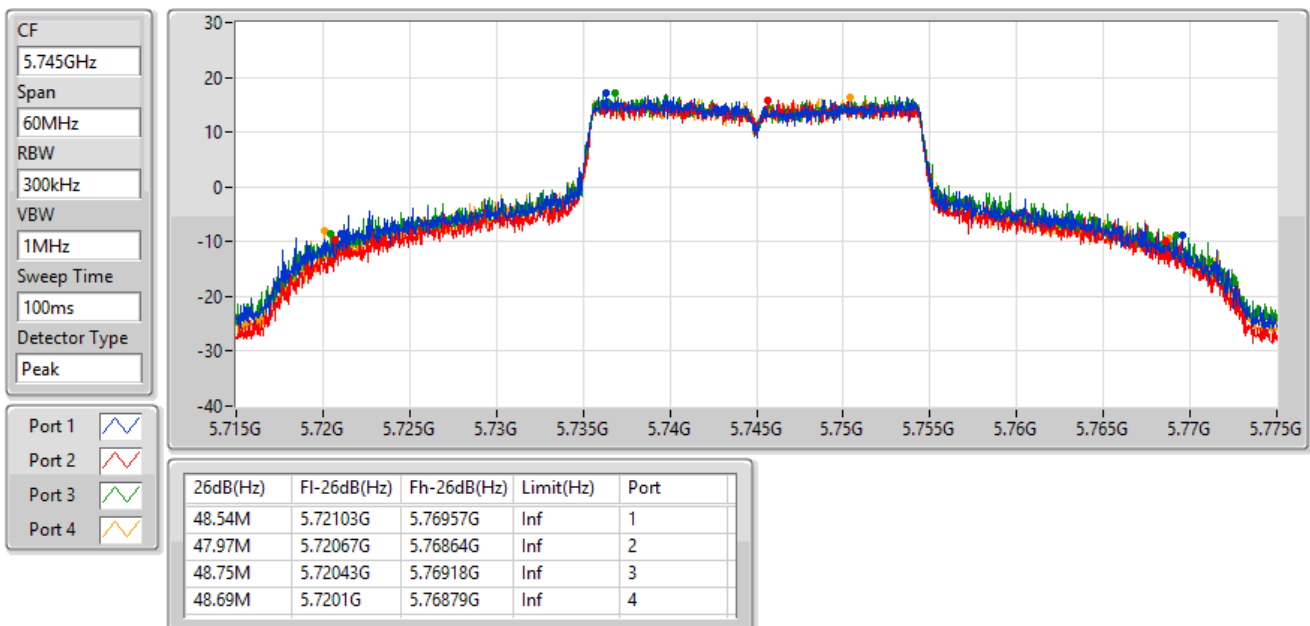


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5745MHz

06/08/2022

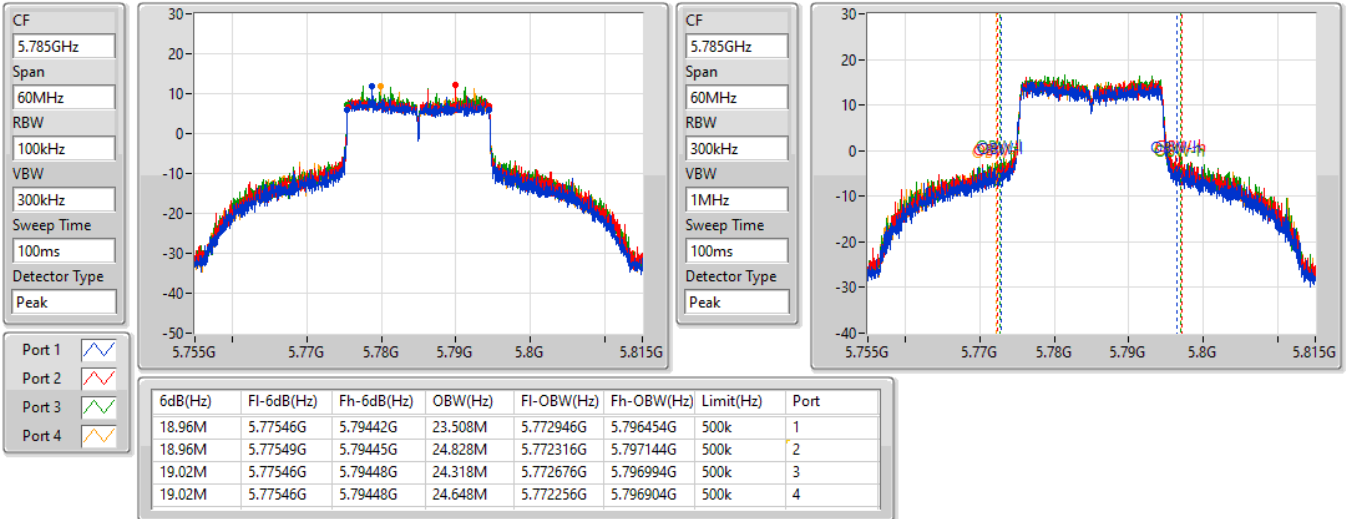


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5785MHz

28/09/2022

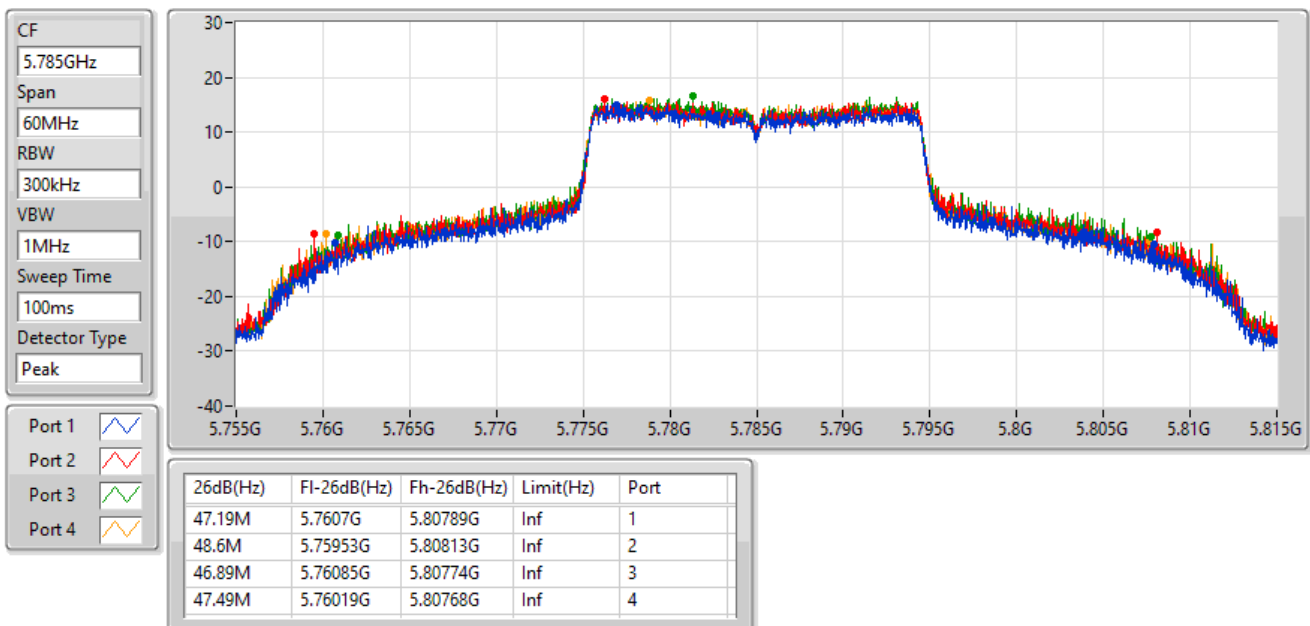


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5785MHz

28/09/2022

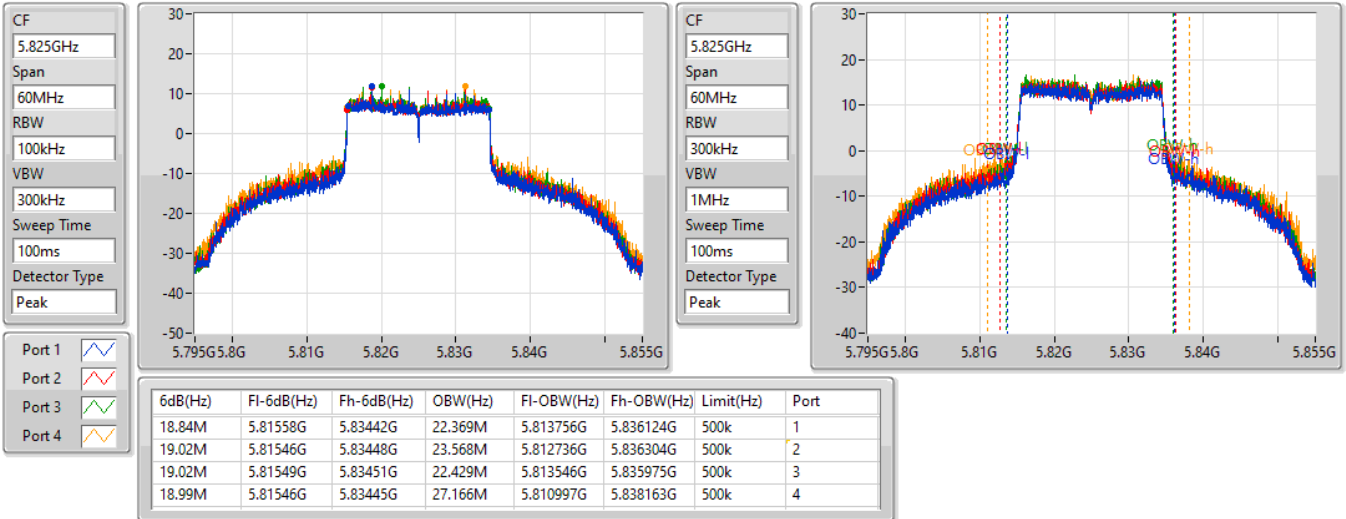


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5825MHz

28/09/2022

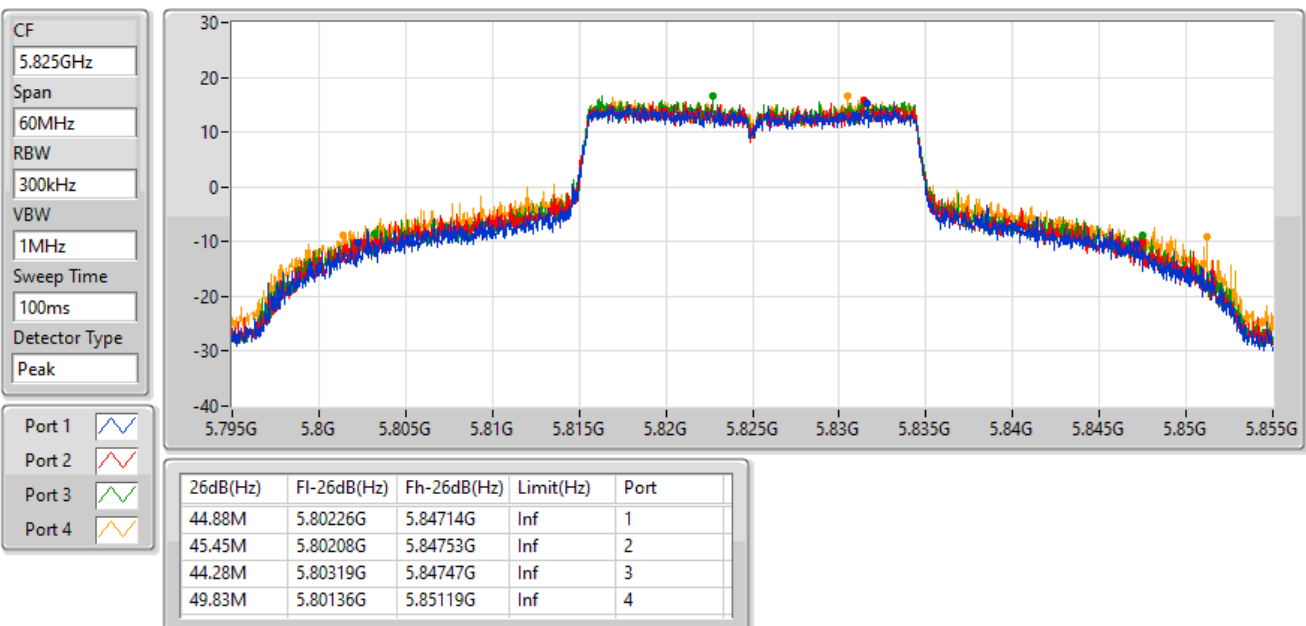


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5825MHz

28/09/2022

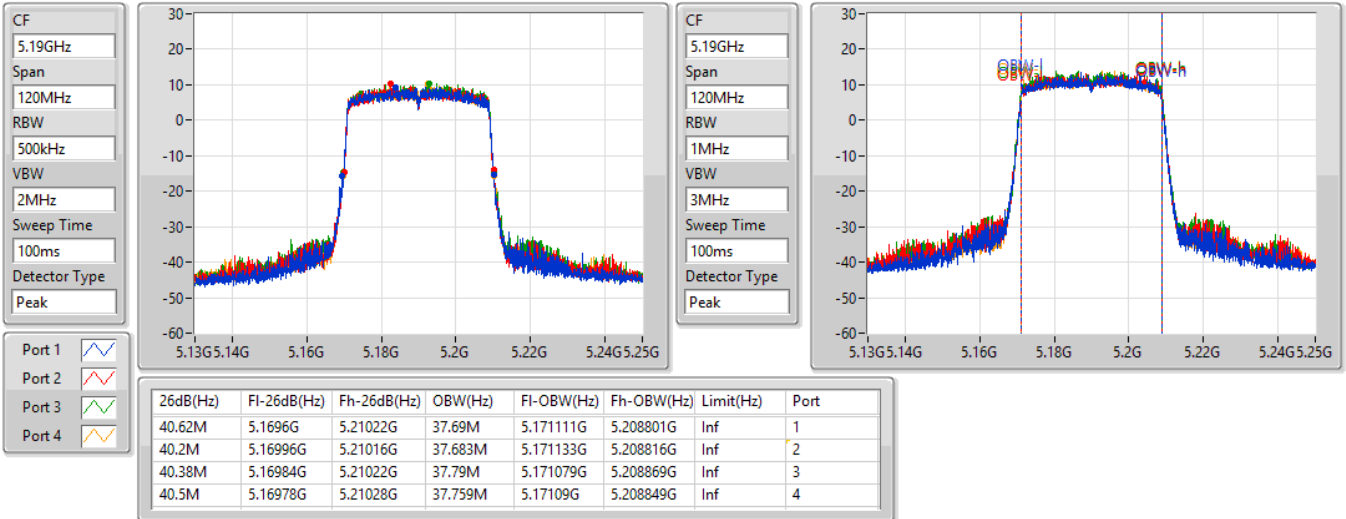


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5190MHz

06/08/2022

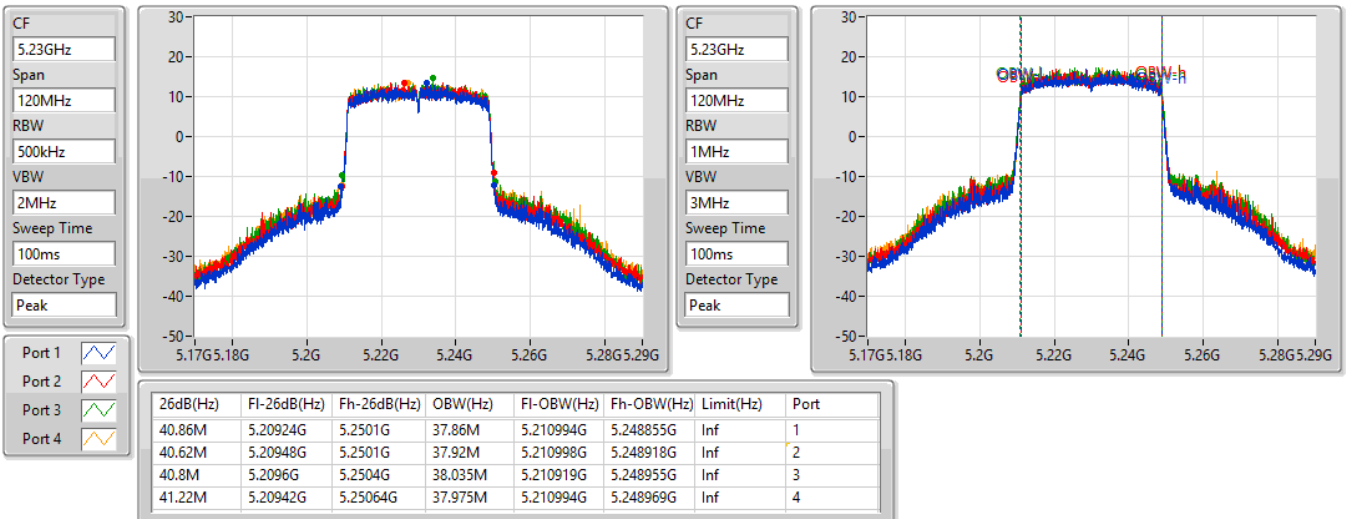


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5230MHz

06/08/2022

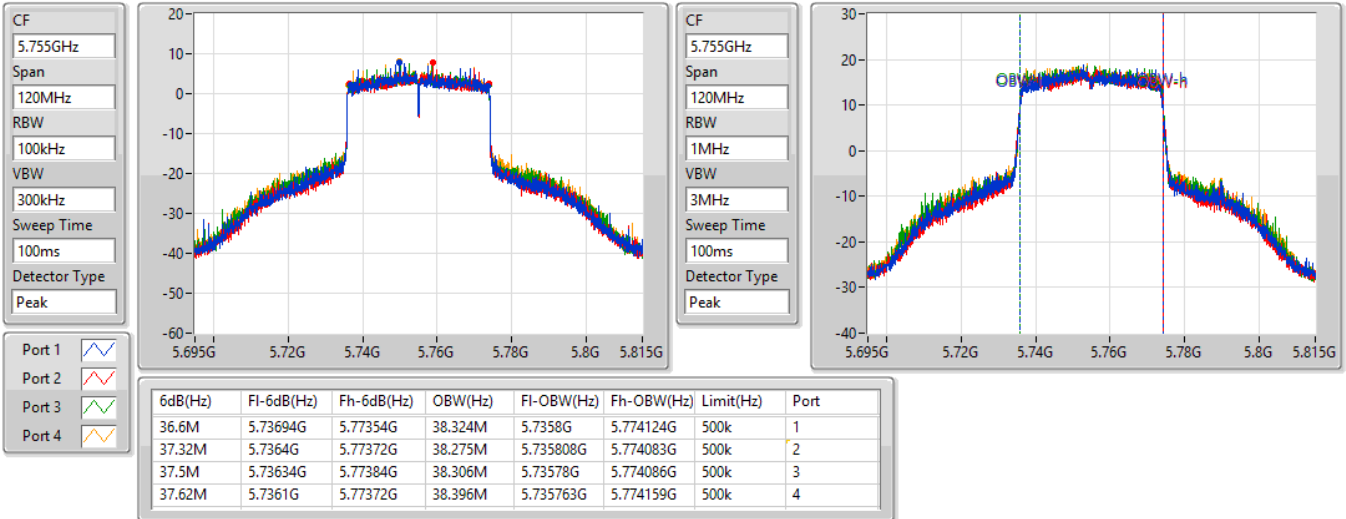


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5755MHz

06/08/2022

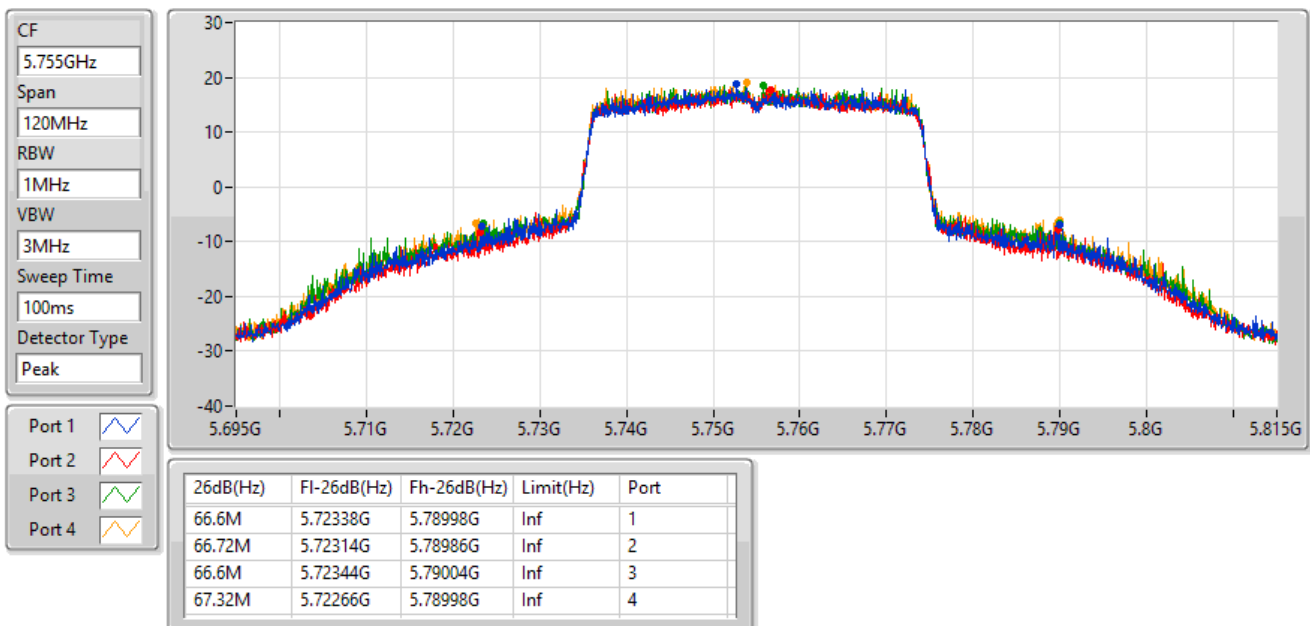


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5755MHz

06/08/2022

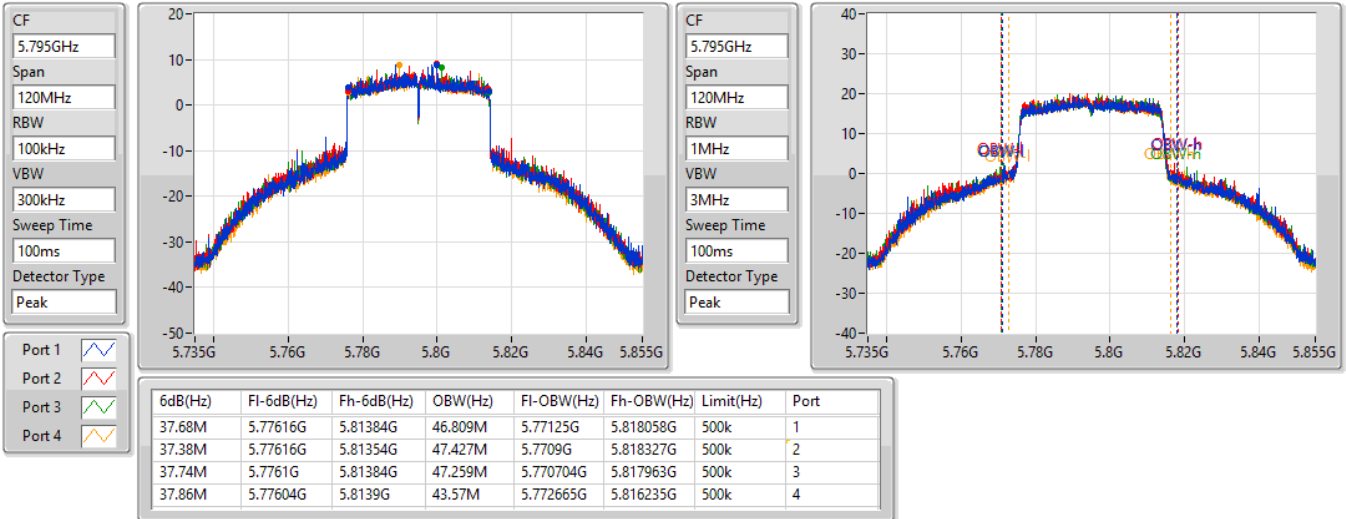


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5795MHz

06/08/2022

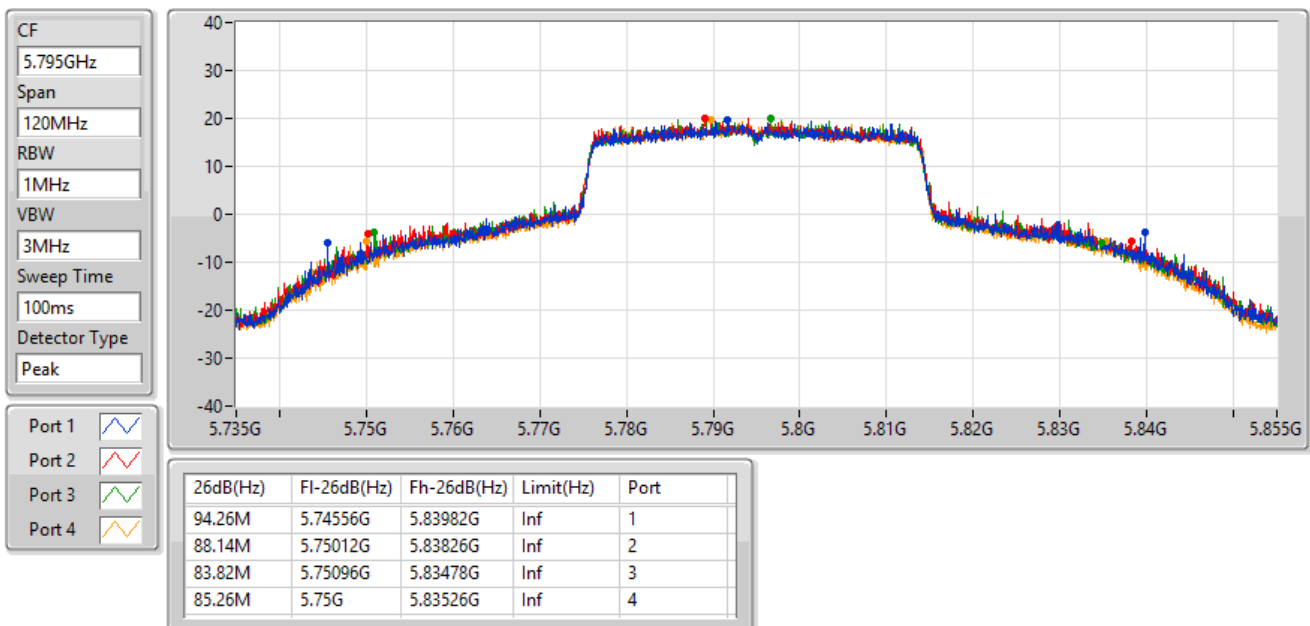


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5795MHz

06/08/2022

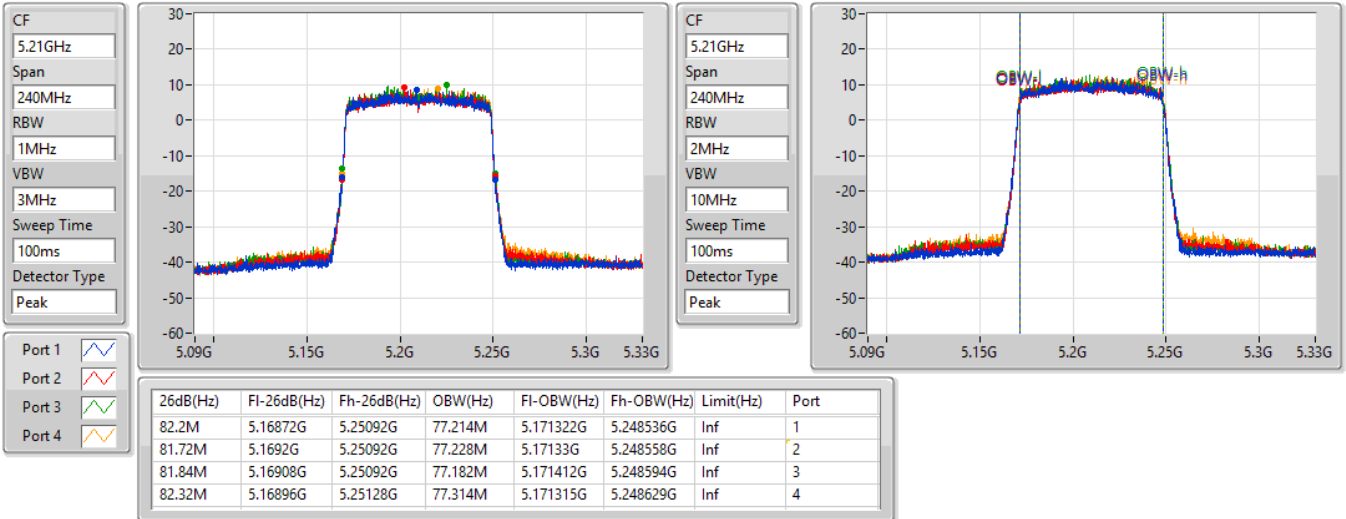


802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

5210MHz

06/08/2022

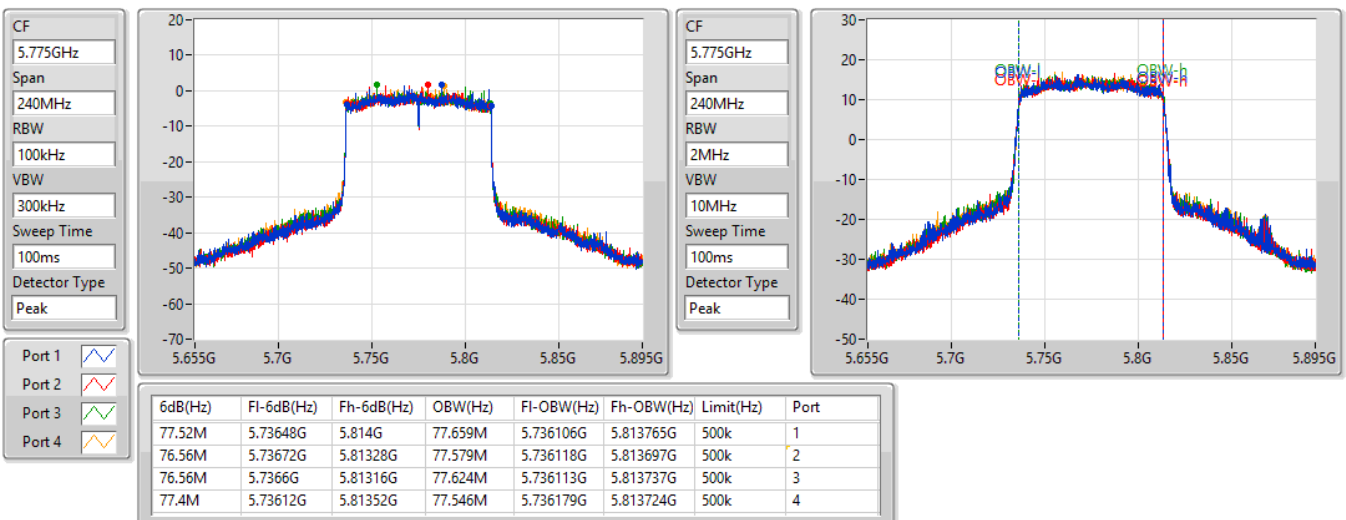


802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

5775MHz

06/08/2022

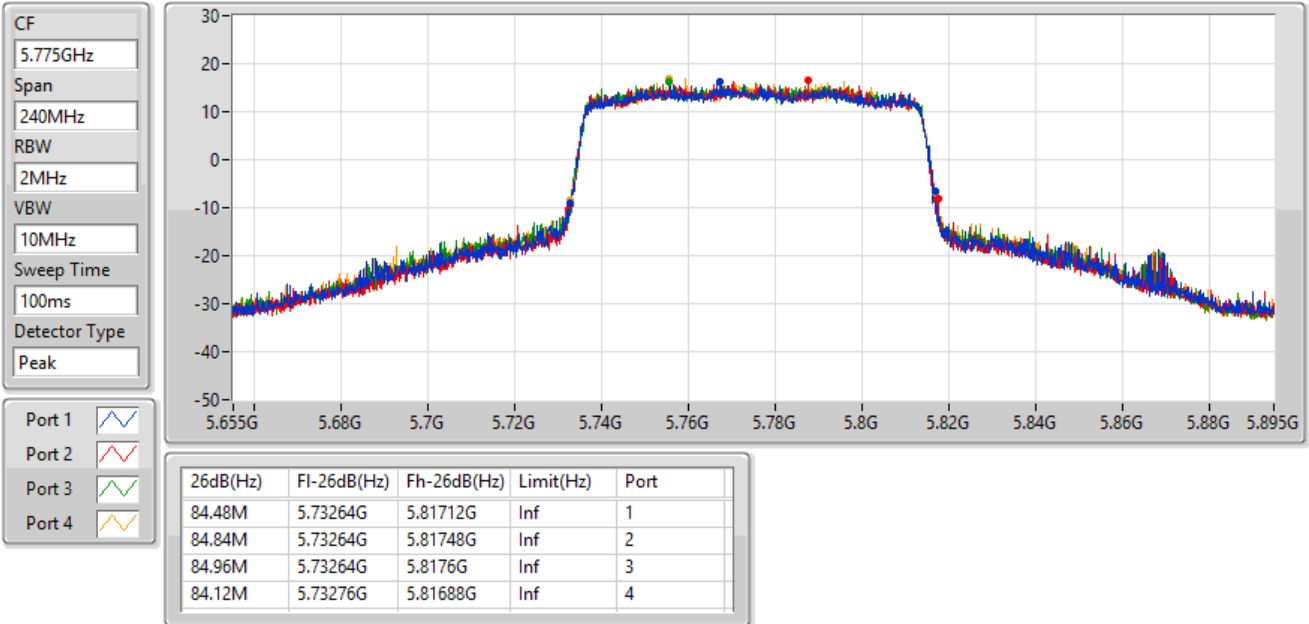


802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

5775MHz

06/08/2022





EBW_R3 + Antenna set 1 for UNII 1 + Antenna set 2 for UNII 3
Beamforming mode

Appendix B.6

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	22.38M	19.16M	19M2D1D	21.93M	19.07M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	40.8M	37.841M	37M8D1D	39.78M	37.721M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	82.8M	77.481M	77M5D1D	81.96M	77.121M
5.725-5.85GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	19.08M	19.16M	19M2D1D	18.84M	19.04M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	37.68M	37.841M	37M8D1D	35.34M	37.781M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	76.92M	77.481M	77M5D1D	71.4M	77.121M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Min-OBW = Minimum 99% occupied bandwidth



EBW_R3 + Antenna set 1 for UNII 1 + Antenna set 2 for UNII 3 Beamforming mode

Appendix B.6

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	21.96M	19.13M	22.11M	19.16M	22.26M	19.07M	21.99M	19.07M
5200MHz	Pass	Inf	22.38M	19.13M	22.17M	19.16M	22.11M	19.1M	22.32M	19.1M
5240MHz	Pass	Inf	21.96M	19.13M	22.35M	19.13M	21.93M	19.07M	22.17M	19.07M
5745MHz	Pass	500k	19.08M	19.07M	19.02M	19.1M	18.99M	19.04M	18.84M	19.04M
5785MHz	Pass	500k	19.02M	19.16M	19.05M	19.07M	19.08M	19.07M	18.99M	19.04M
5825MHz	Pass	500k	19.05M	19.13M	19.05M	19.13M	19.02M	19.07M	19.02M	19.1M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	40.74M	37.781M	40.62M	37.721M	40.8M	37.841M	40.26M	37.841M
5230MHz	Pass	Inf	40.38M	37.841M	39.78M	37.781M	40.5M	37.721M	40.26M	37.841M
5755MHz	Pass	500k	37.2M	37.841M	35.76M	37.841M	37.32M	37.841M	37.56M	37.841M
5795MHz	Pass	500k	35.34M	37.781M	37.68M	37.841M	37.38M	37.841M	37.56M	37.841M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	82.08M	77.361M	82.8M	77.481M	82.68M	77.241M	81.96M	77.121M
5775MHz	Pass	500k	74.28M	77.241M	76.92M	77.361M	75.12M	77.121M	71.4M	77.481M

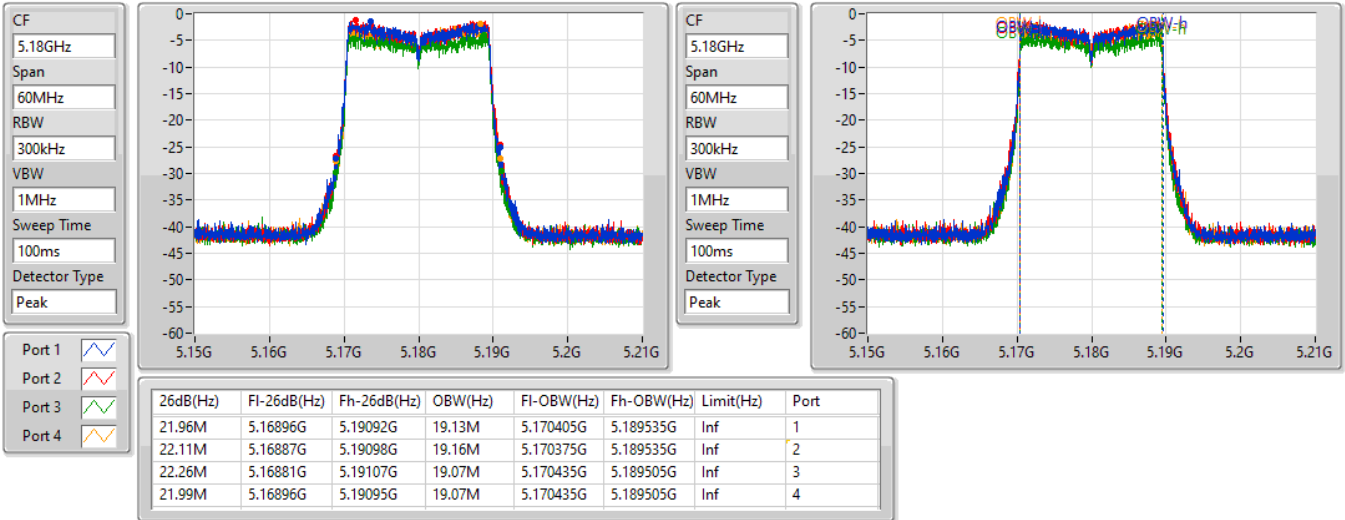
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port X 99% occupied bandwidth

802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5180MHz

14/09/2022

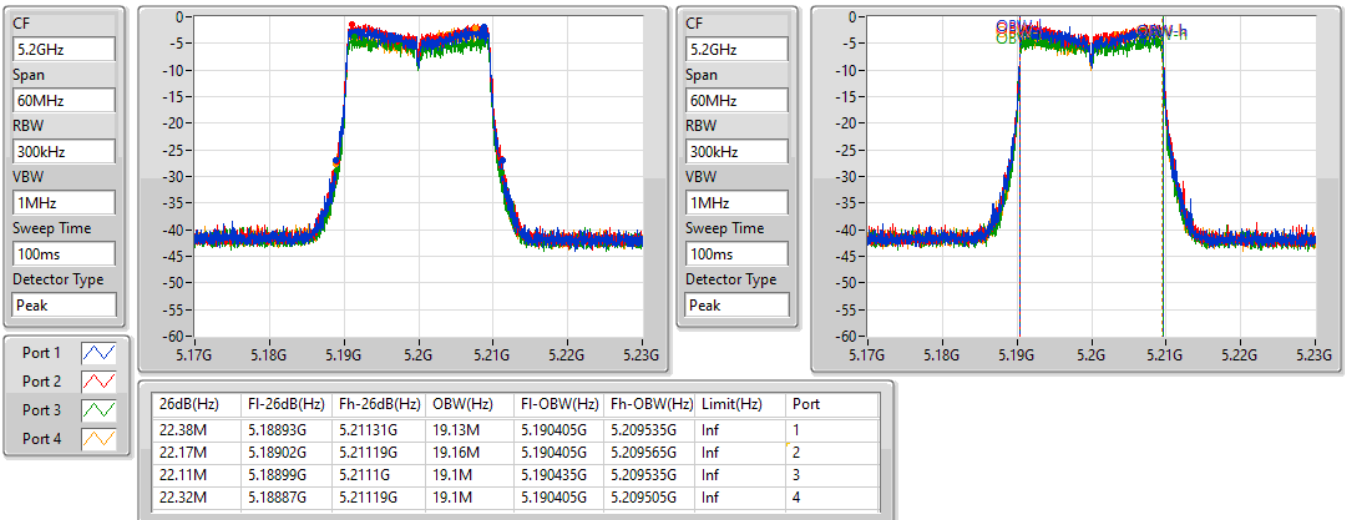


802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5200MHz

14/09/2022

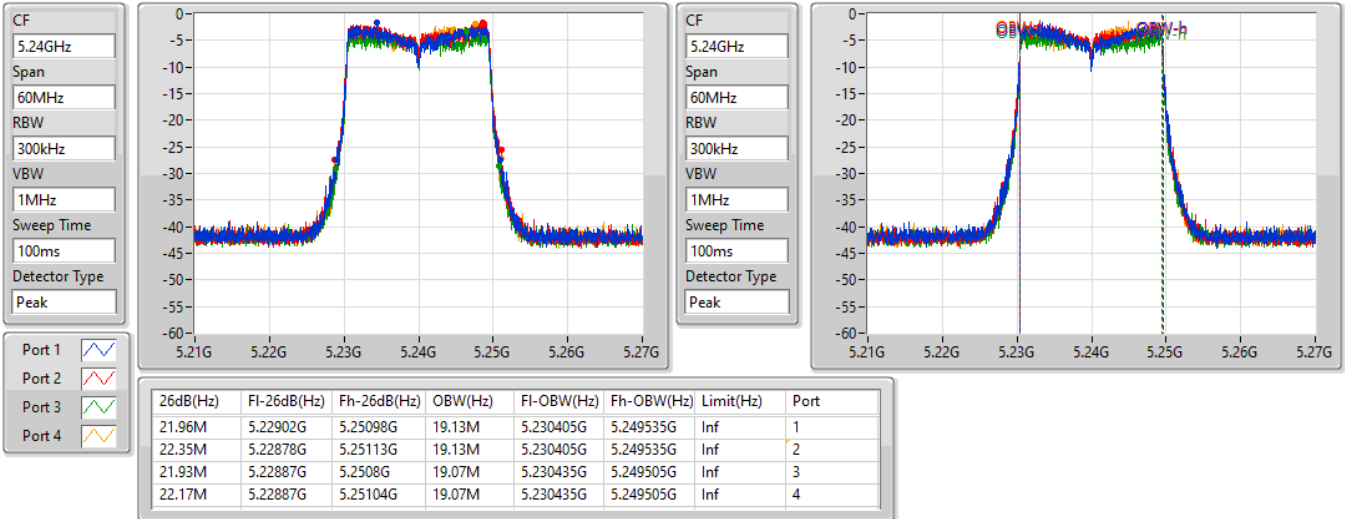


802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5240MHz

14/09/2022

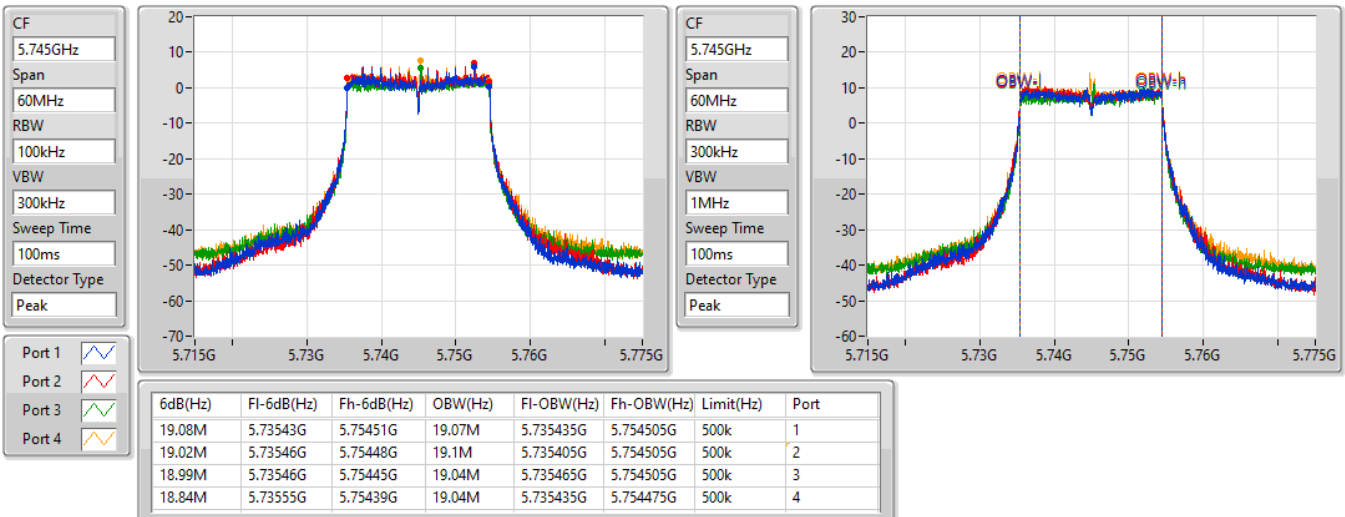


802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5745MHz

14/09/2022

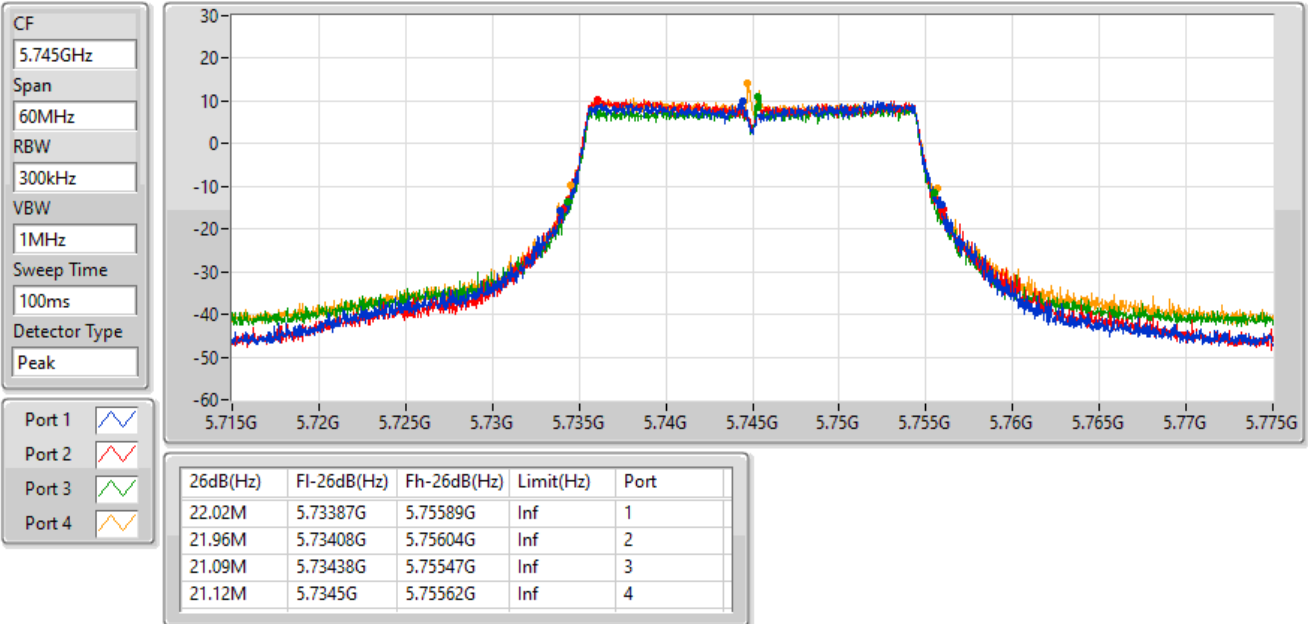


802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5745MHz

14/09/2022

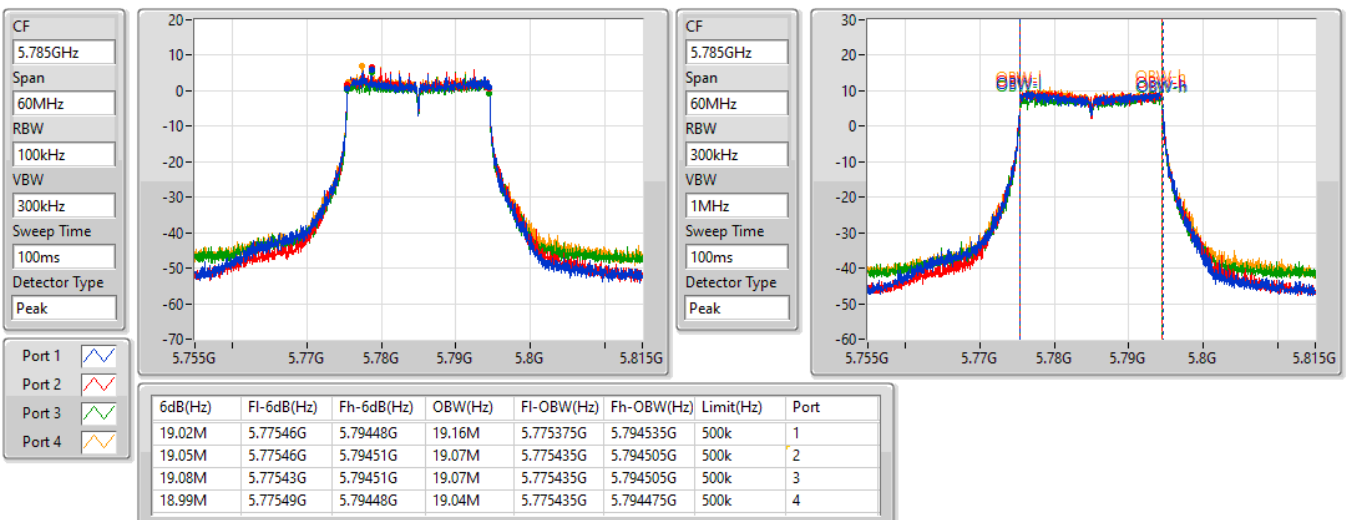


802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5785MHz

14/09/2022

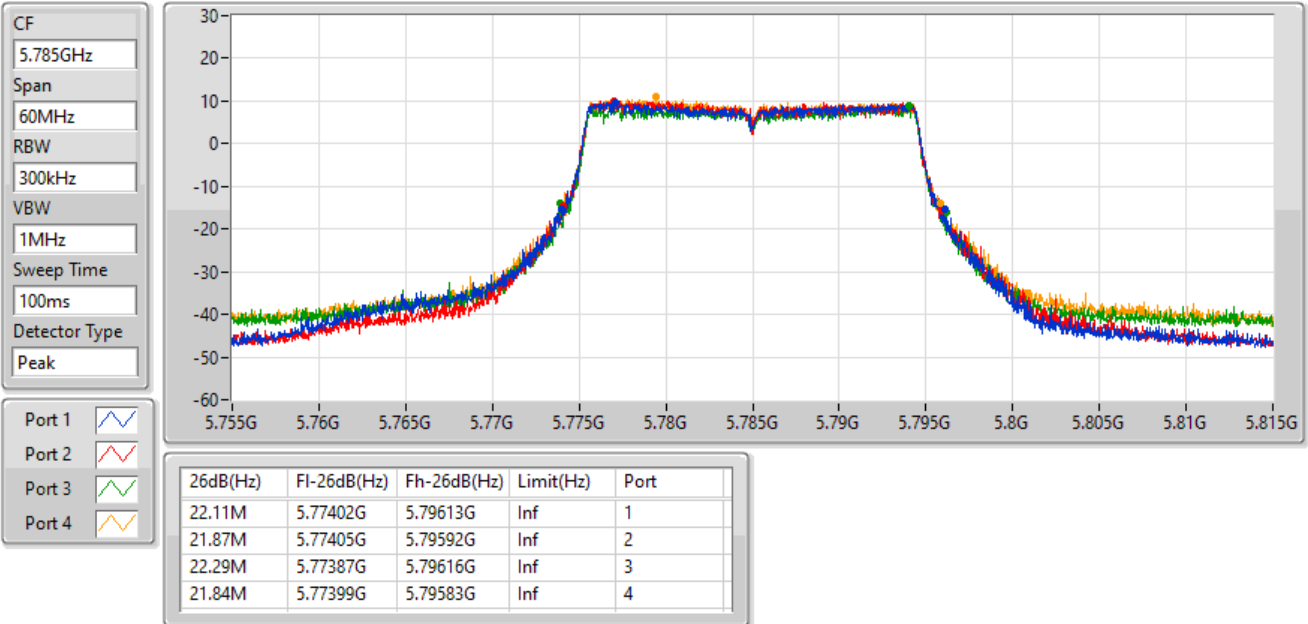


802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5785MHz

14/09/2022

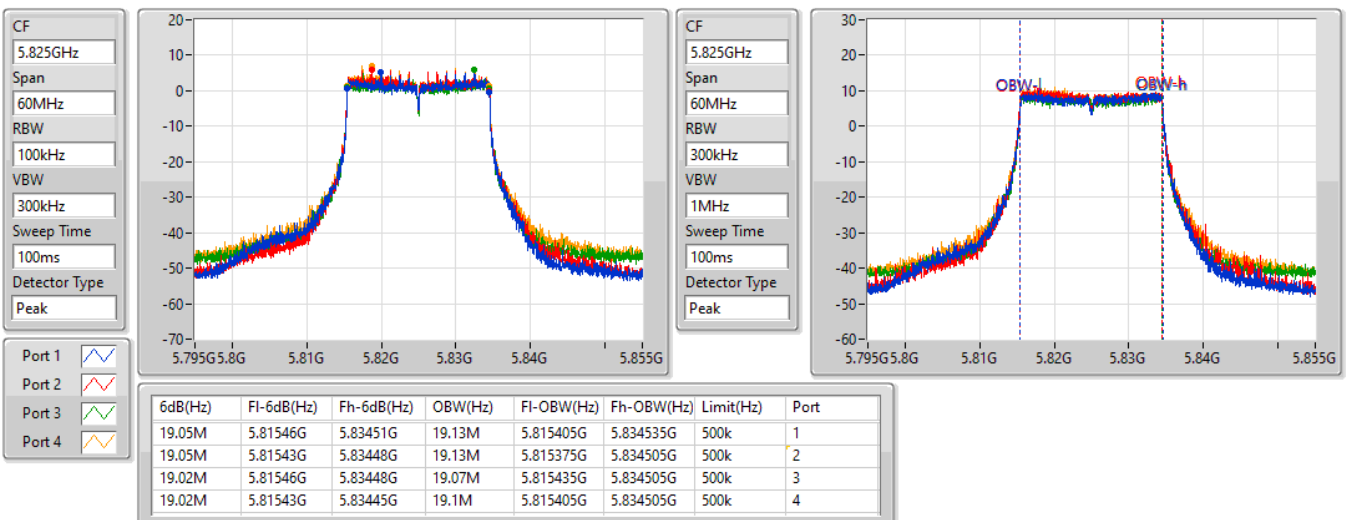


802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5825MHz

14/09/2022

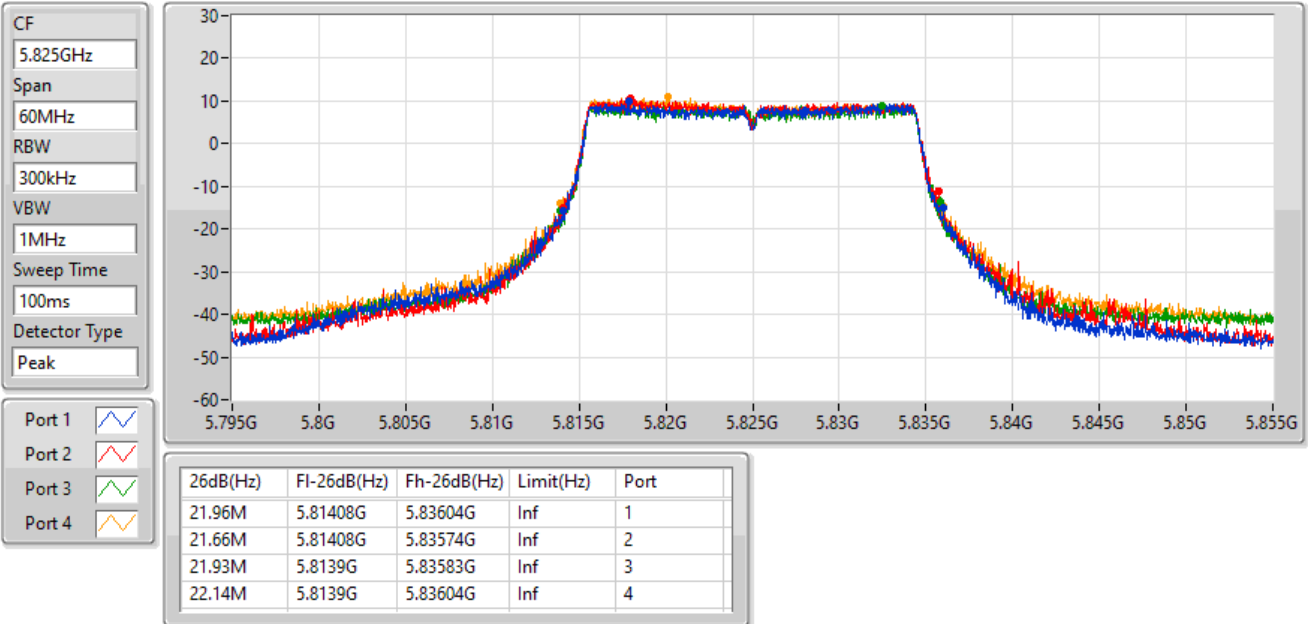


802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5825MHz

14/09/2022

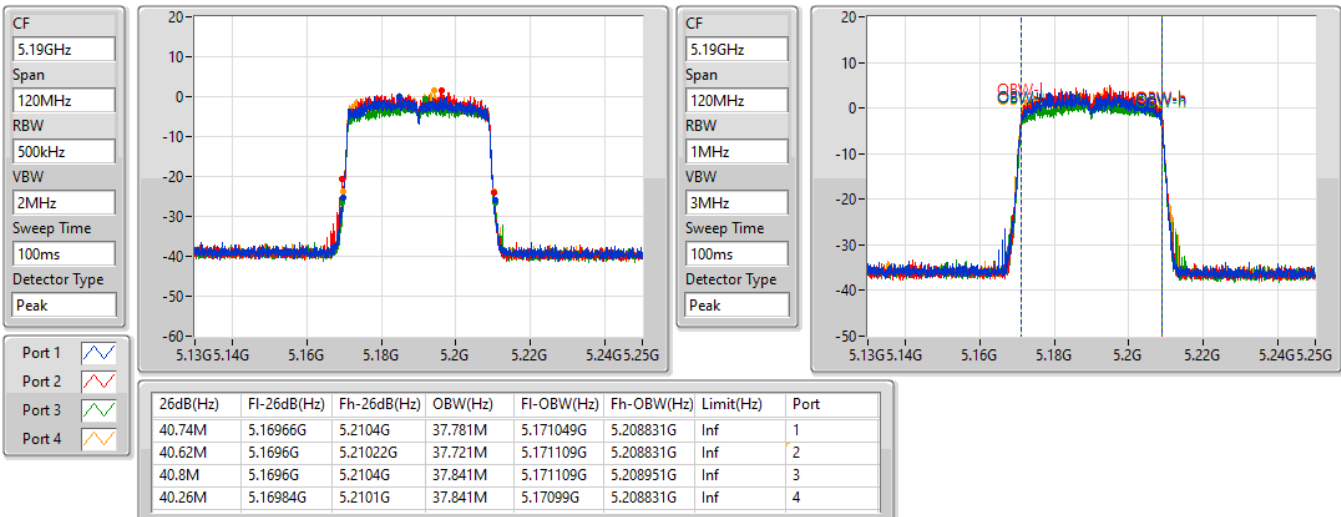


802.11ax HEW40-BF_Nss1,(MCS0)_4TX

EBW

5190MHz

14/09/2022

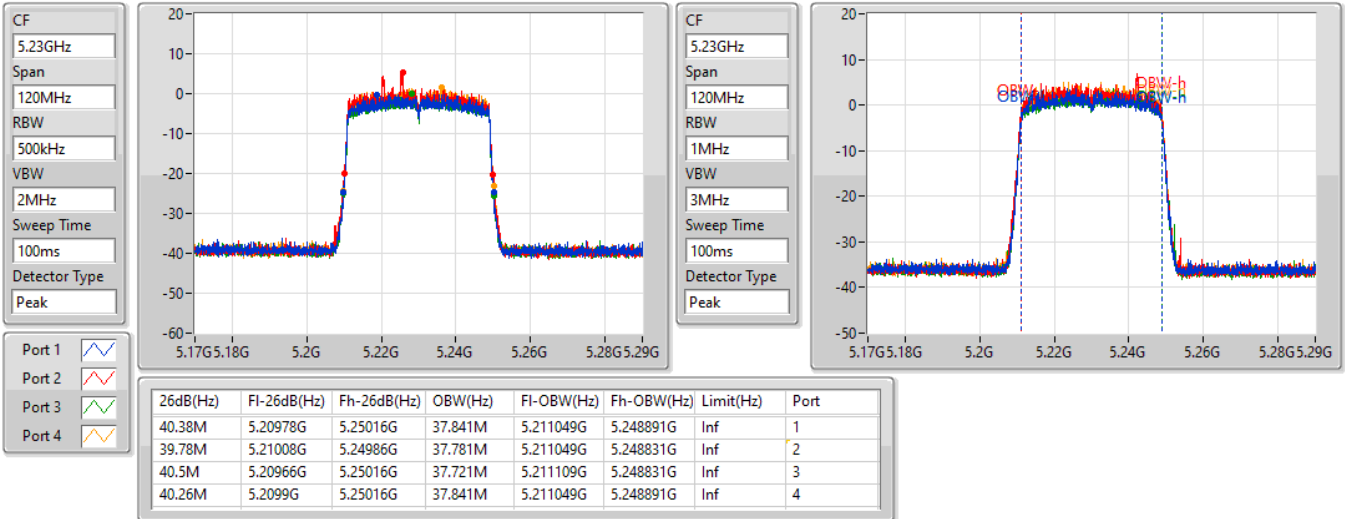


802.11ax HEW40-BF_Nss1,(MCS0)_4TX

EBW

5230MHz

14/09/2022

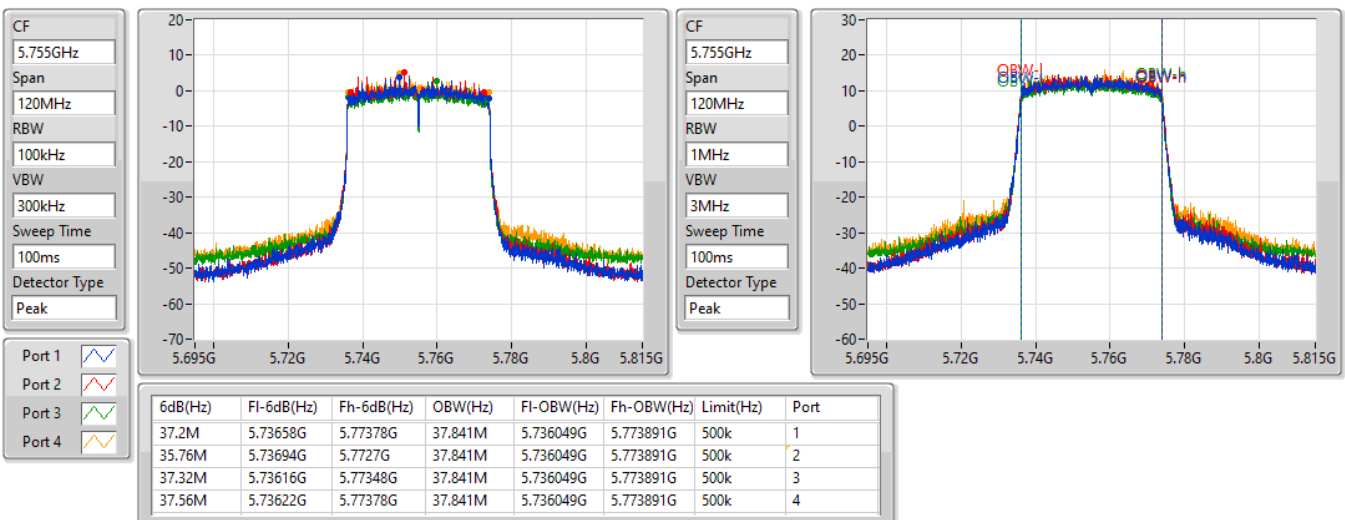


802.11ax HEW40-BF_Nss1,(MCS0)_4TX

EBW

5755MHz

14/09/2022

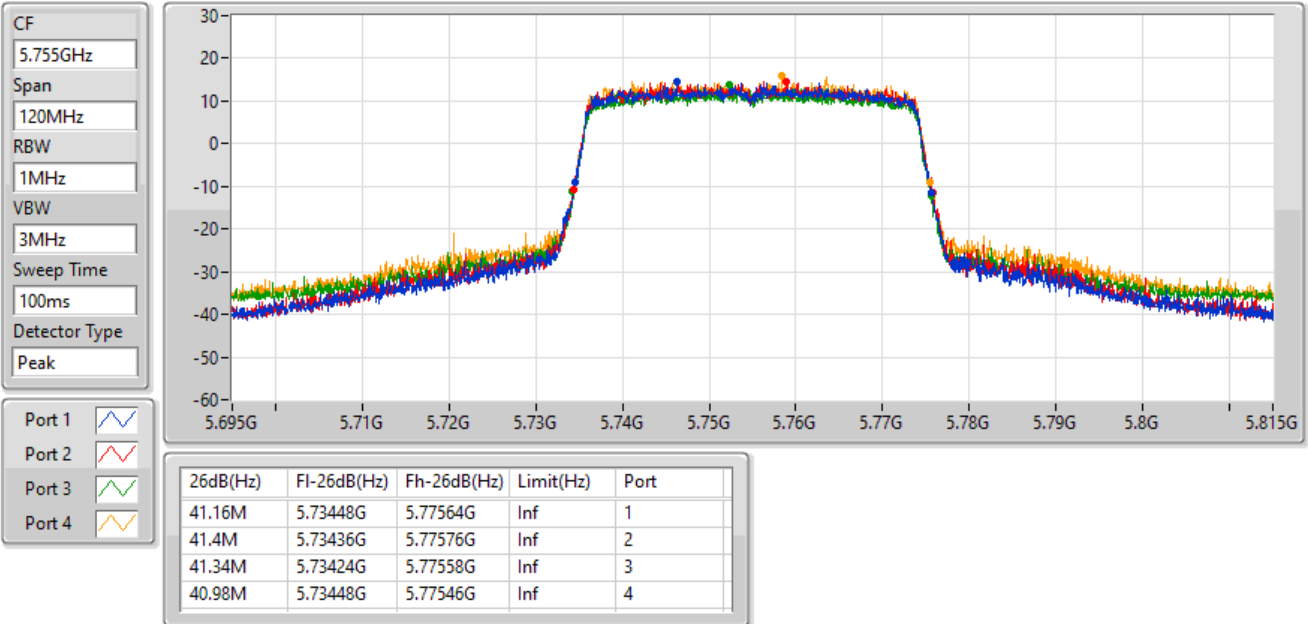


802.11ax HEW40-BF_Nss1,(MCS0)_4TX

EBW

5755MHz

14/09/2022

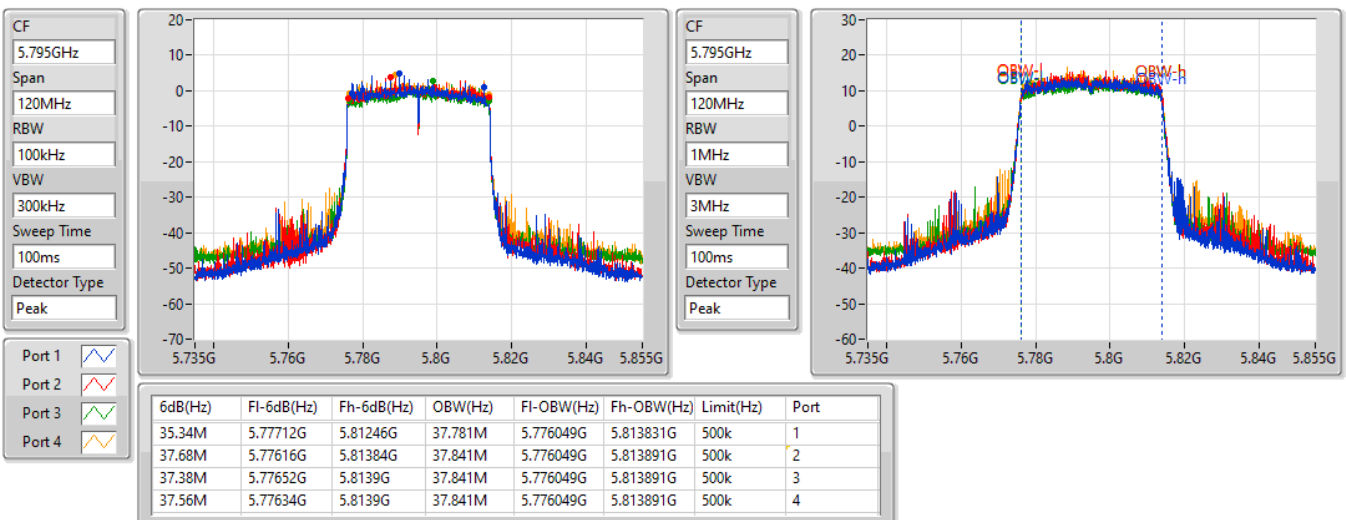


802.11ax HEW40-BF_Nss1,(MCS0)_4TX

EBW

5795MHz

14/09/2022

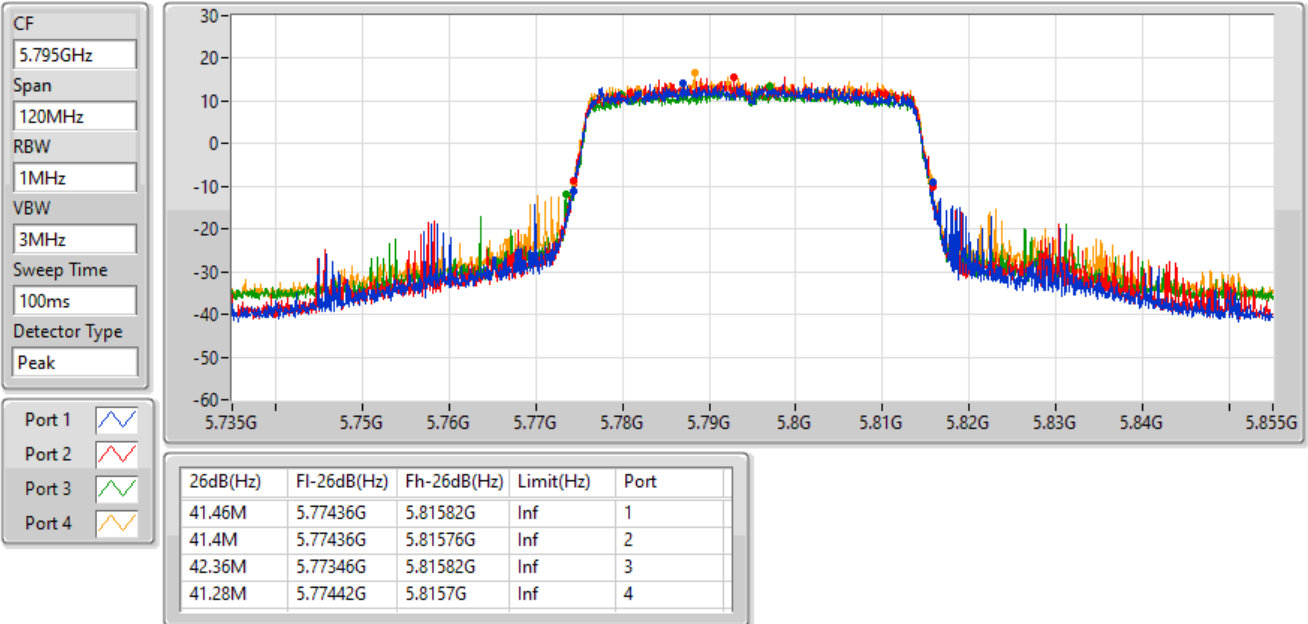


802.11ax HEW40-BF_Nss1,(MCS0)_4TX

EBW

5795MHz

14/09/2022

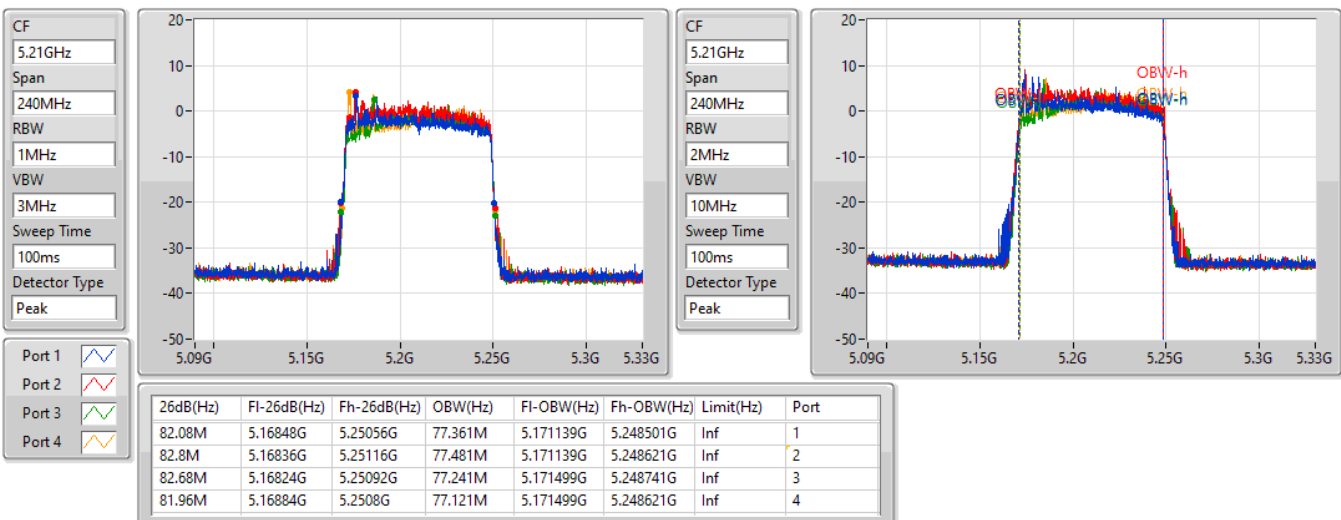


802.11ax HEW80-BF_Nss1,(MCS0)_4TX

EBW

5210MHz

14/09/2022

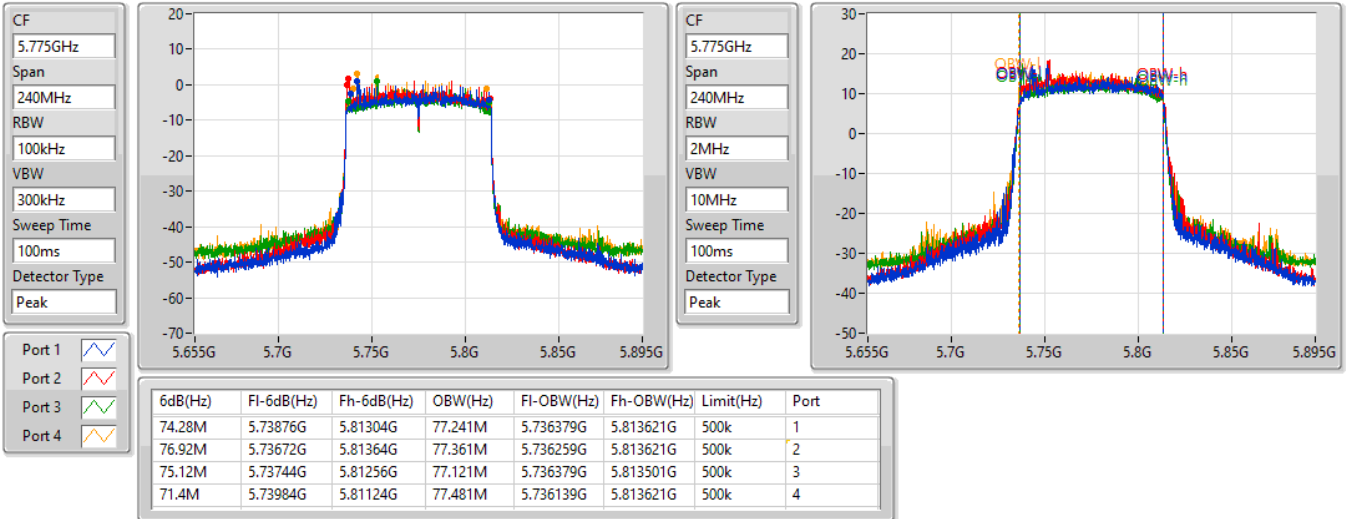


802.11ax HEW80-BF_Nss1,(MCS0)_4TX

EBW

5775MHz

14/09/2022

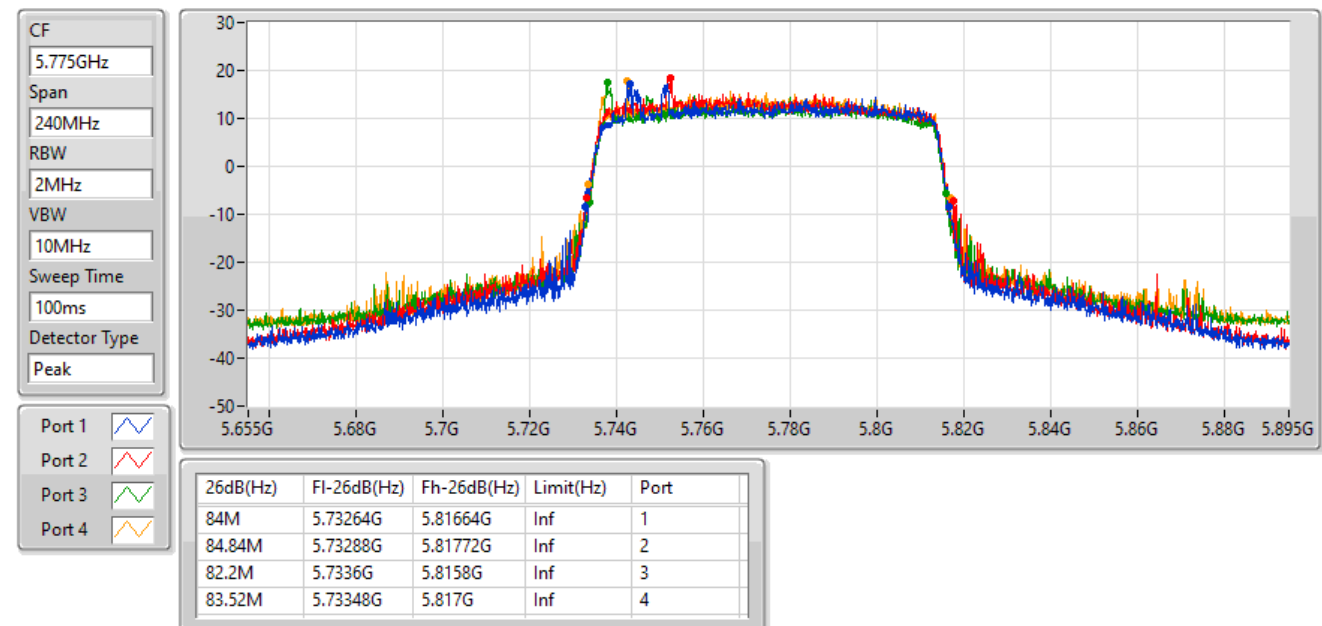


802.11ax HEW80-BF_Nss1,(MCS0)_4TX

EBW

5775MHz

14/09/2022



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	20.91M	16.567M	16M6D1D	20.1M	16.465M
802.11ax HEW20_Nss1,(MCS0)_4TX	22.74M	19.13M	19M1D1D	21.78M	19.042M
802.11ax HEW40_Nss1,(MCS0)_4TX	40.56M	37.841M	37M8D1D	40.2M	37.613M
802.11ax HEW80_Nss1,(MCS0)_4TX	82.44M	77.481M	77M5D1D	81.96M	77.241M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	16.35M	16.902M	16M9D1D	16.32M	16.798M
802.11ax HEW20_Nss1,(MCS0)_4TX	19.08M	19.217M	19M2D1D	18.9M	19.114M
802.11ax HEW40_Nss1,(MCS0)_4TX	37.98M	38.125M	38M1D1D	37.08M	37.886M
802.11ax HEW80_Nss1,(MCS0)_4TX	77.76M	77.735M	77M7D1D	75.84M	77.444M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
 Max-OBW = Maximum 99% occupied bandwidth;
 Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
 Min-OBW = Minimum 99% occupied bandwidth

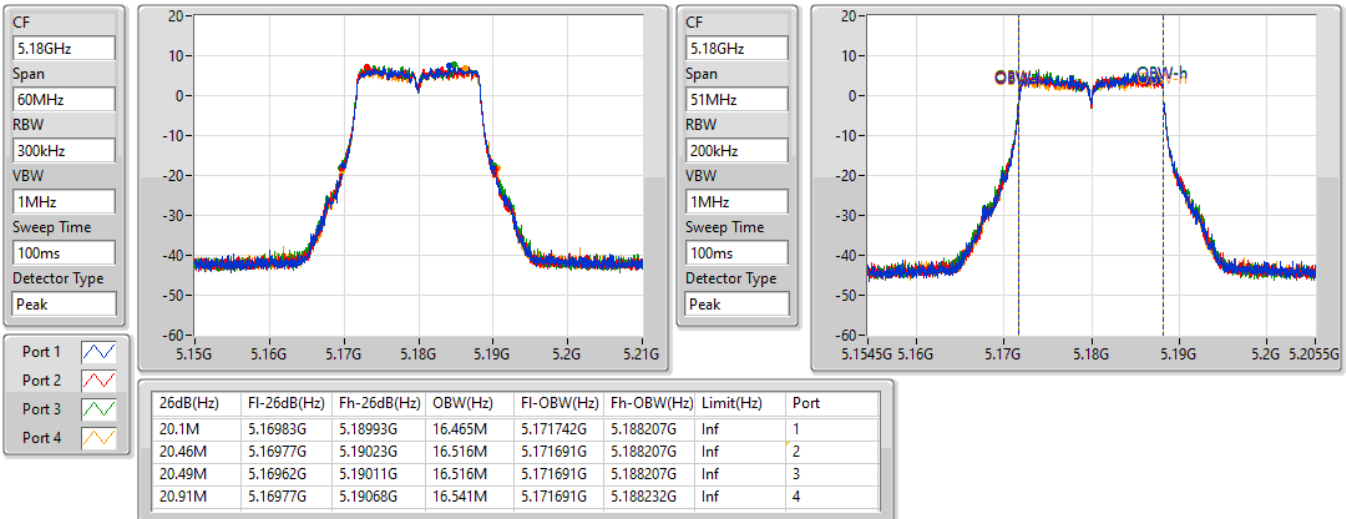
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	20.1M	16.465M	20.46M	16.516M	20.49M	16.516M	20.91M	16.541M
5200MHz	Pass	Inf	20.16M	16.49M	20.43M	16.516M	20.49M	16.516M	20.52M	16.541M
5240MHz	Pass	Inf	20.16M	16.516M	20.49M	16.516M	20.22M	16.516M	20.58M	16.567M
5745MHz	Pass	500k	16.32M	16.813M	16.35M	16.89M	16.35M	16.827M	16.32M	16.902M
5785MHz	Pass	500k	16.32M	16.825M	16.35M	16.896M	16.35M	16.831M	16.32M	16.868M
5825MHz	Pass	500k	16.32M	16.83M	16.32M	16.855M	16.35M	16.798M	16.32M	16.897M
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	21.81M	19.042M	21.96M	19.1M	22.17M	19.1M	21.84M	19.071M
5200MHz	Pass	Inf	21.84M	19.13M	21.84M	19.071M	22.74M	19.13M	22.14M	19.071M
5240MHz	Pass	Inf	21.78M	19.071M	21.9M	19.1M	21.93M	19.1M	22.05M	19.071M
5745MHz	Pass	500k	19.05M	19.176M	18.99M	19.217M	18.9M	19.173M	18.96M	19.19M
5785MHz	Pass	500k	18.99M	19.114M	18.99M	19.161M	18.99M	19.166M	19.02M	19.141M
5825MHz	Pass	500k	18.99M	19.155M	18.96M	19.143M	19.08M	19.178M	18.9M	19.151M
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	40.32M	37.672M	40.32M	37.672M	40.5M	37.613M	40.2M	37.672M
5230MHz	Pass	Inf	40.56M	37.781M	40.38M	37.841M	40.32M	37.781M	40.32M	37.781M
5755MHz	Pass	500k	37.68M	38.003M	37.08M	37.886M	37.98M	38.031M	37.56M	38.062M
5795MHz	Pass	500k	37.62M	37.928M	37.38M	38.031M	37.98M	38.039M	37.98M	38.125M
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	82.44M	77.241M	82.32M	77.481M	81.96M	77.241M	81.96M	77.241M
5775MHz	Pass	500k	77.04M	77.444M	75.84M	77.467M	76.08M	77.691M	77.76M	77.735M

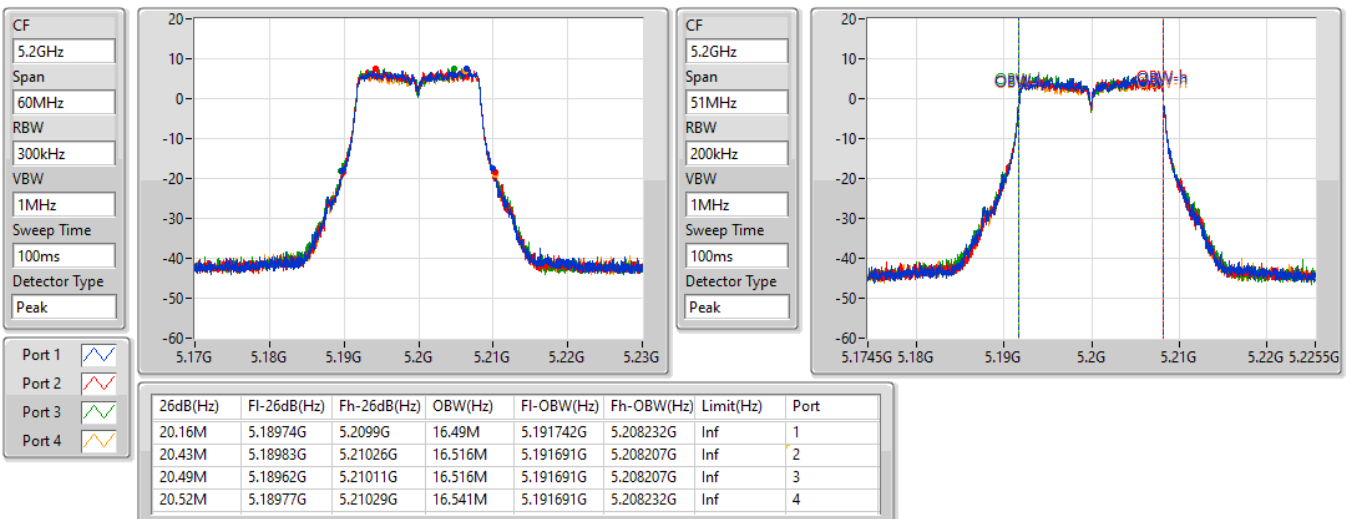
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port X 99% occupied bandwidth

5.15-5.25GHz_802.11a_Nss1,(6Mbps)_4TX
EBW
5180MHz

13/10/2022

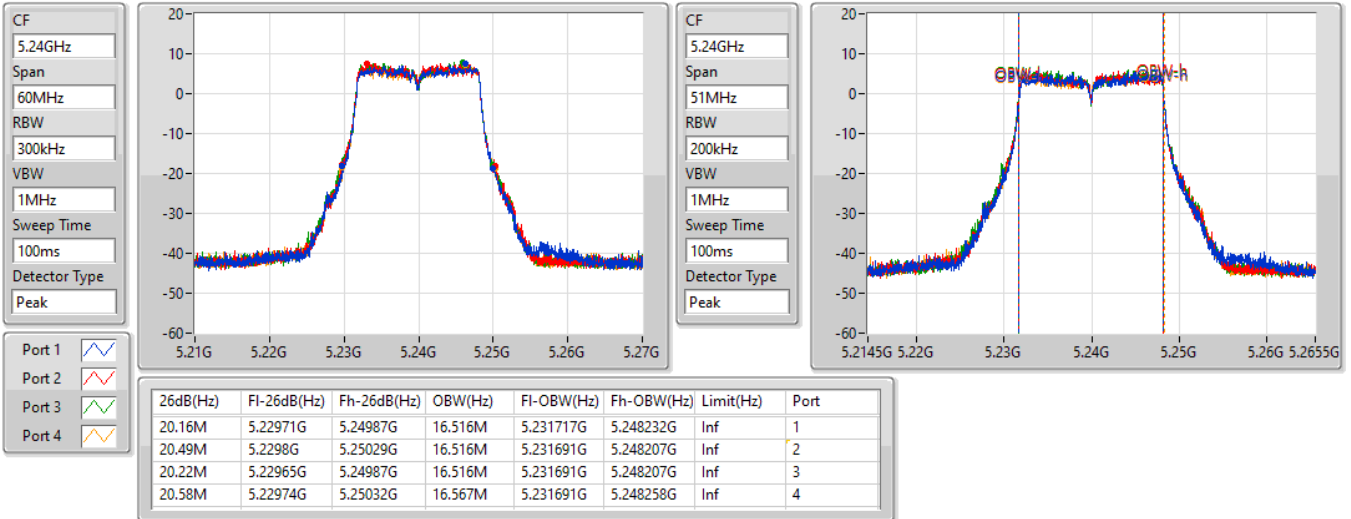

5.15-5.25GHz_802.11a_Nss1,(6Mbps)_4TX
EBW
5200MHz

13/10/2022

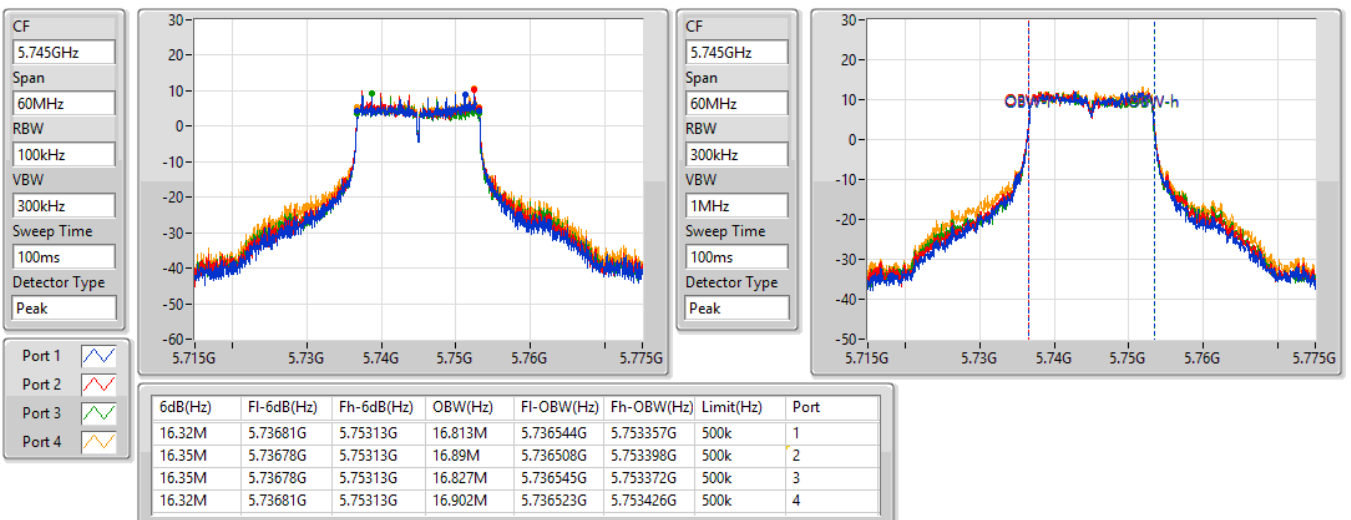


5.15-5.25GHz_802.11a_Nss1,(6Mbps)_4TX
EBW
5240MHz

13/10/2022


802.11a_Nss1,(6Mbps)_4TX
EBW
5745MHz

19/09/2022

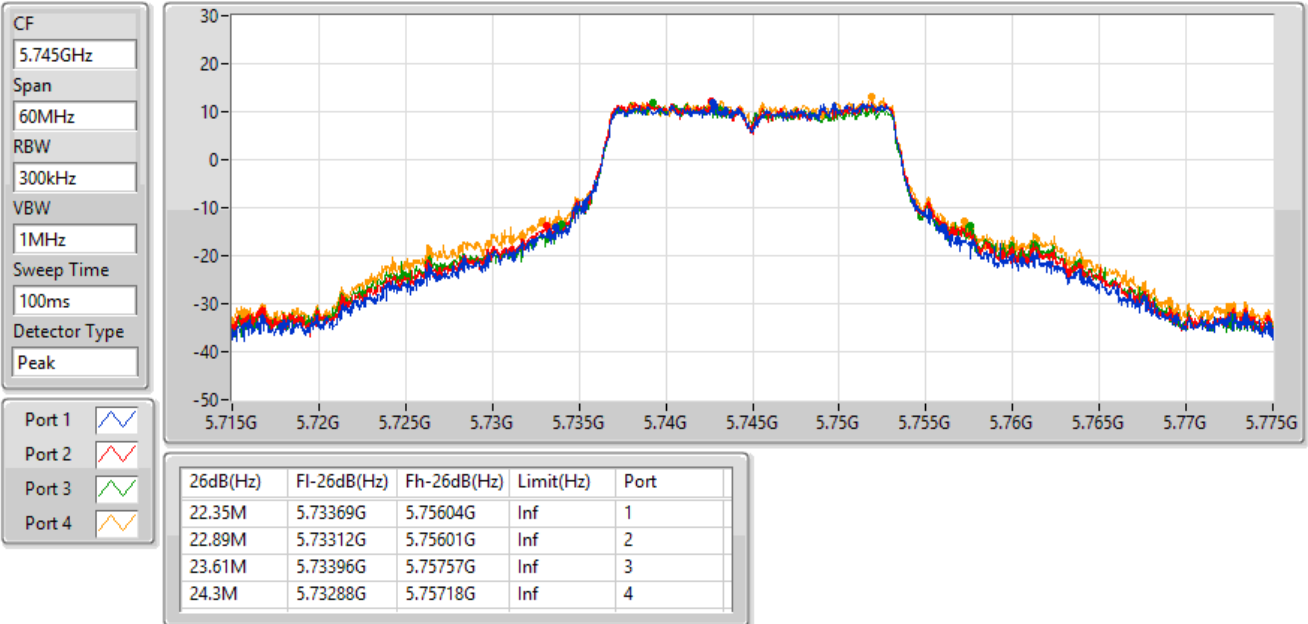


802.11a_Nss1,(6Mbps)_4TX

EBW

5745MHz

19/09/2022

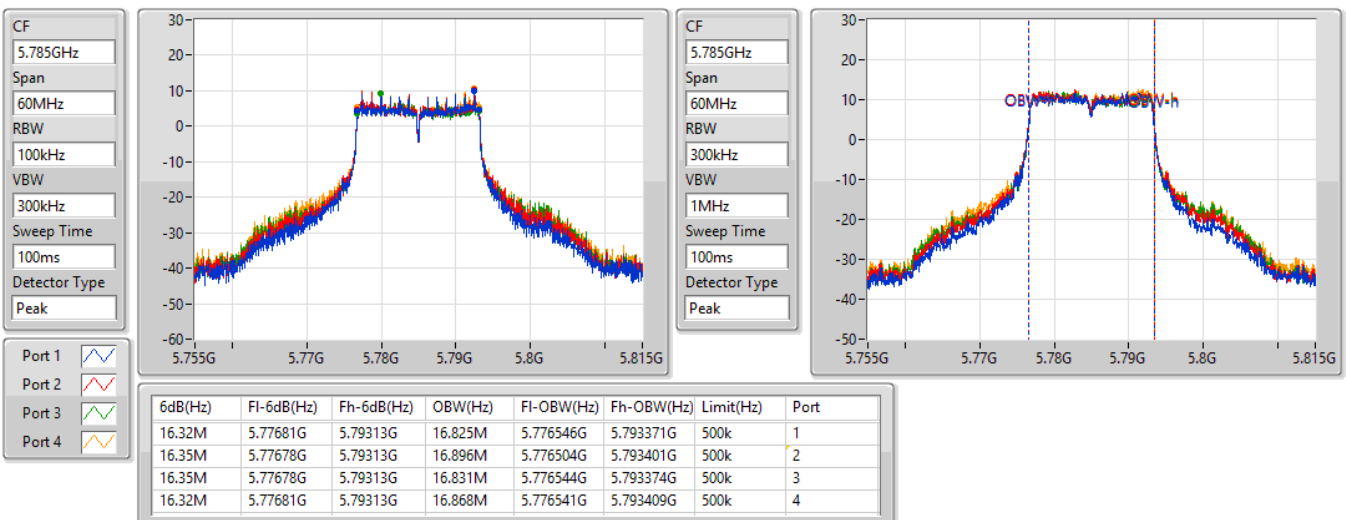


802.11a_Nss1,(6Mbps)_4TX

EBW

5785MHz

19/09/2022

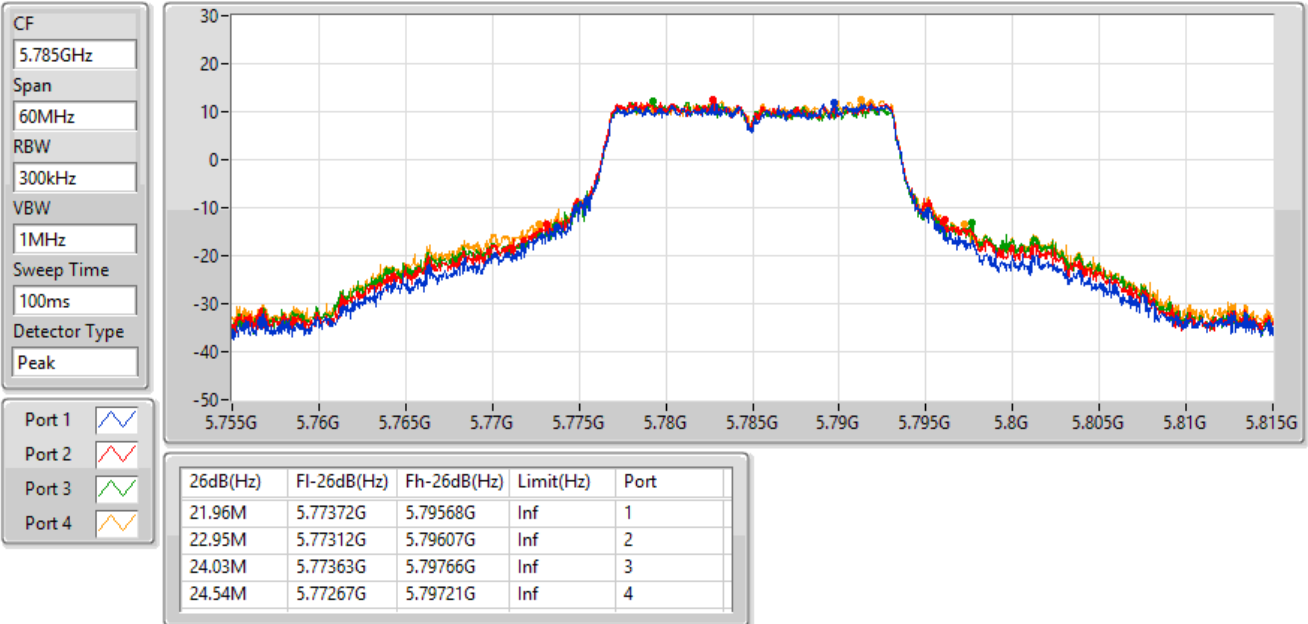


802.11a_Nss1,(6Mbps)_4TX

EBW

5785MHz

19/09/2022

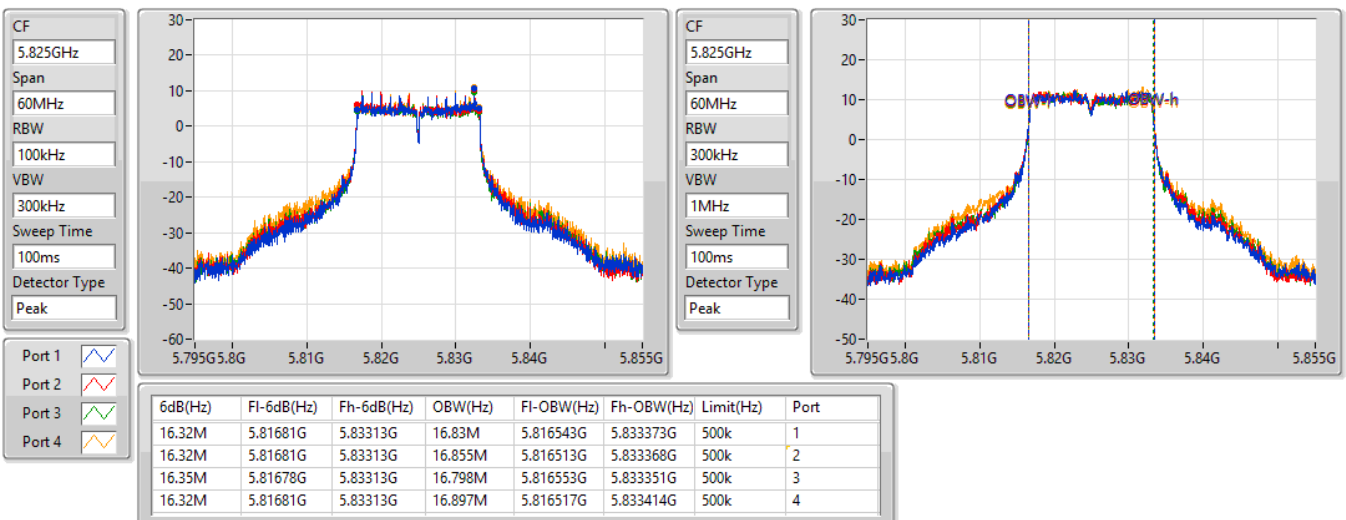


802.11a_Nss1,(6Mbps)_4TX

EBW

5825MHz

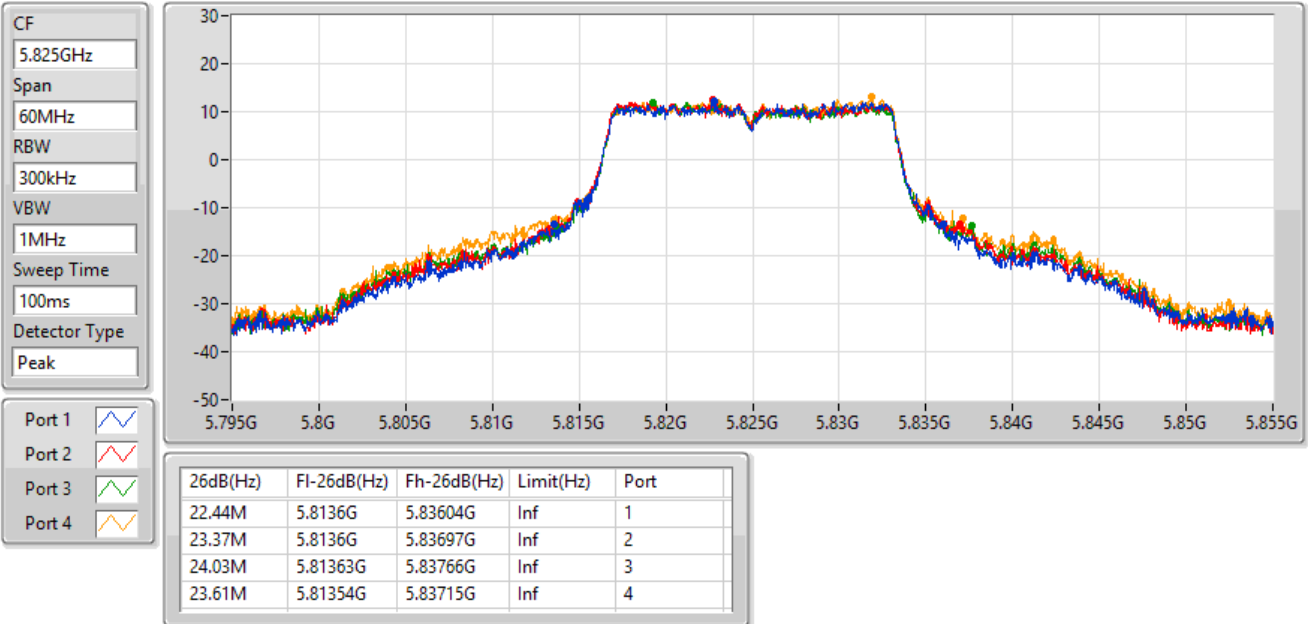
19/09/2022



802.11a_Nss1,(6Mbps)_4TX

EBW
5825MHz

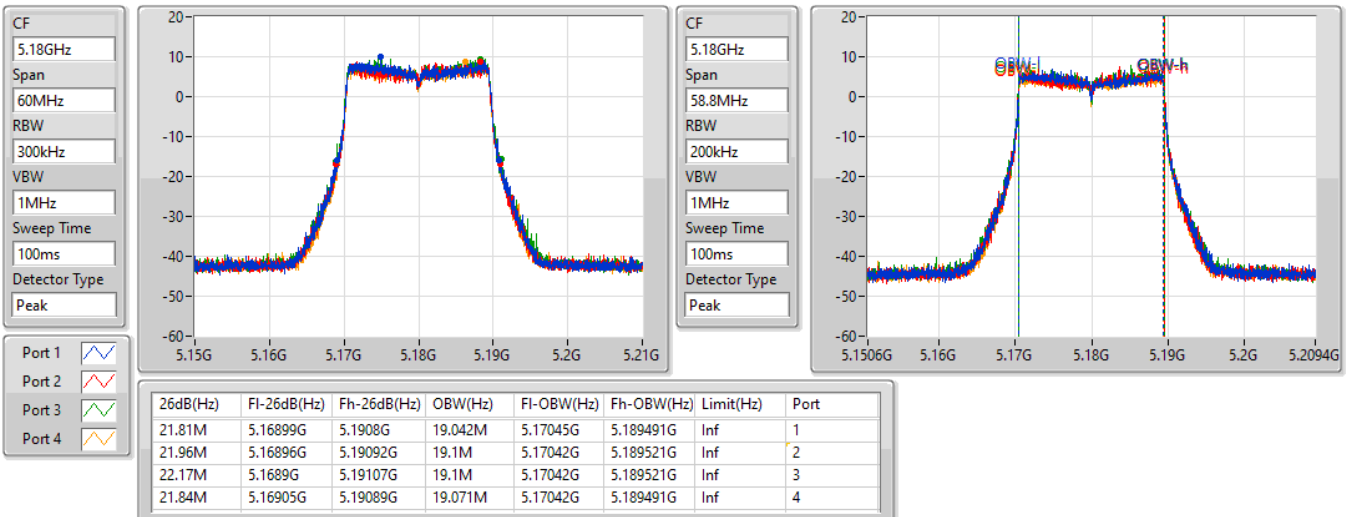
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5.15-5.25GHz_802.11ax HEW20_Nss1,(MCS0)_4TX

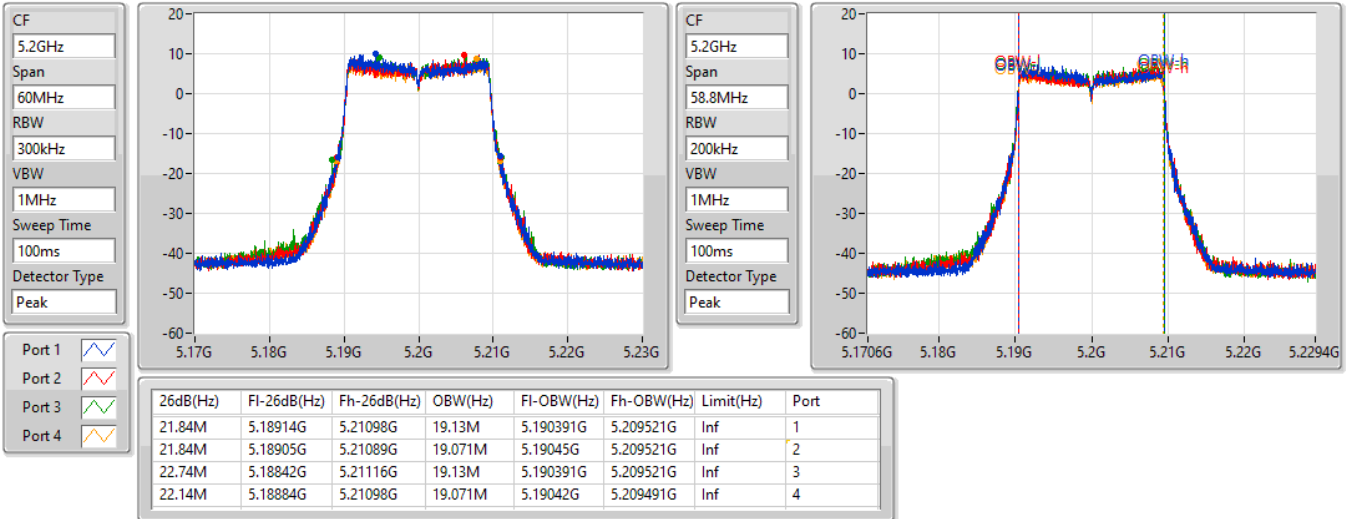
EBW
5180MHz

13/10/2022

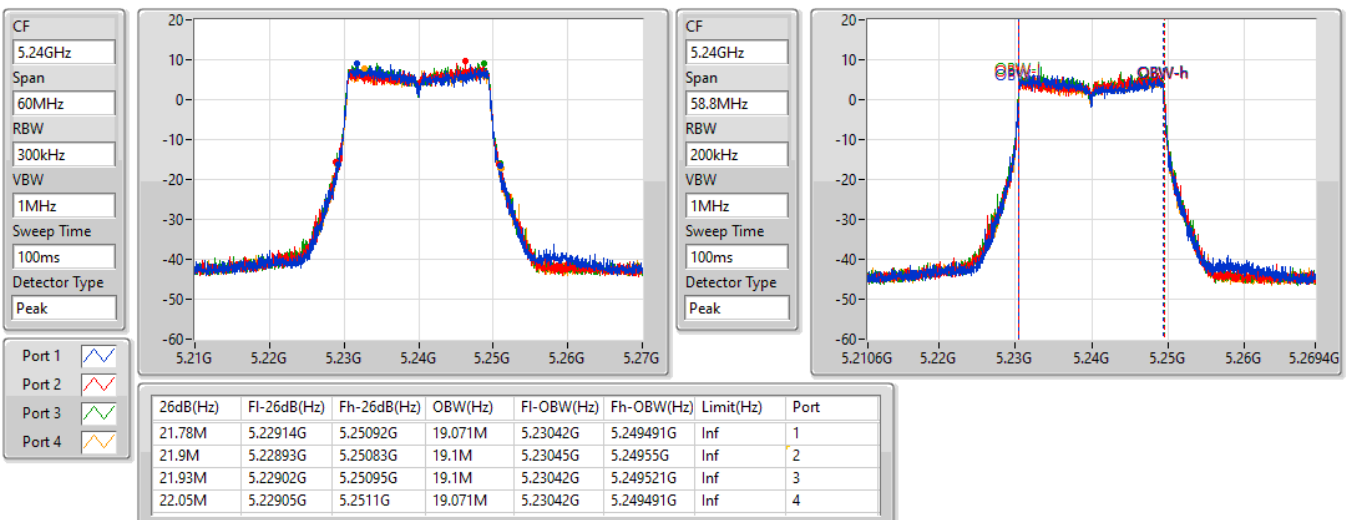


5.15-5.25GHz_802.11ax HEW20_Nss1,(MCS0)_4TX
EBW
5200MHz

13/10/2022


5.15-5.25GHz_802.11ax HEW20_Nss1,(MCS0)_4TX
EBW
5240MHz

13/10/2022

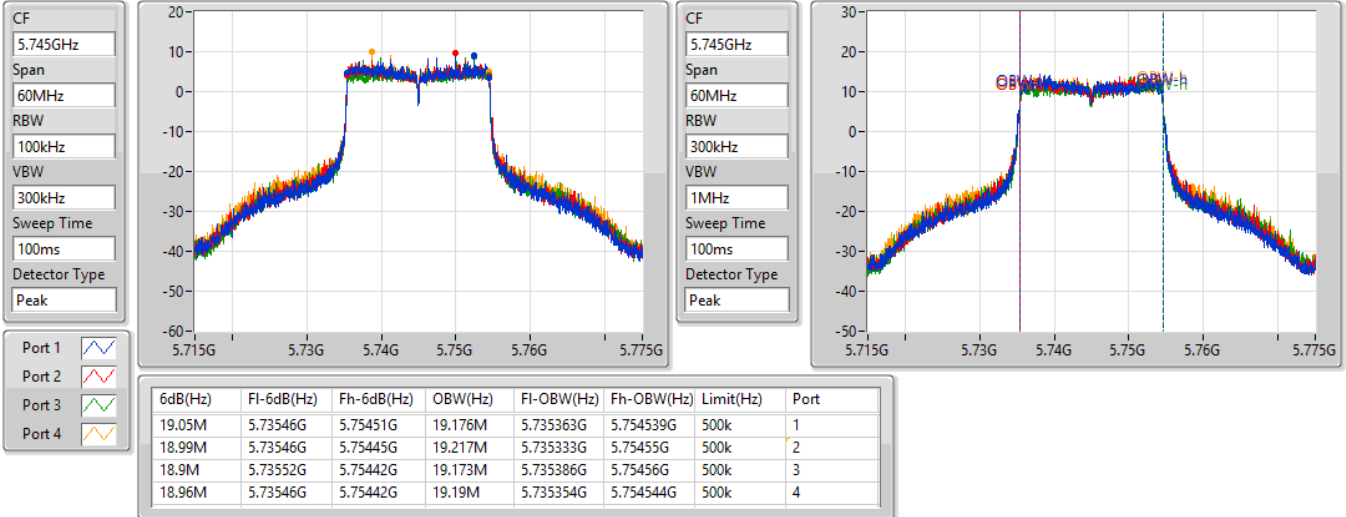


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5745MHz

19/09/2022

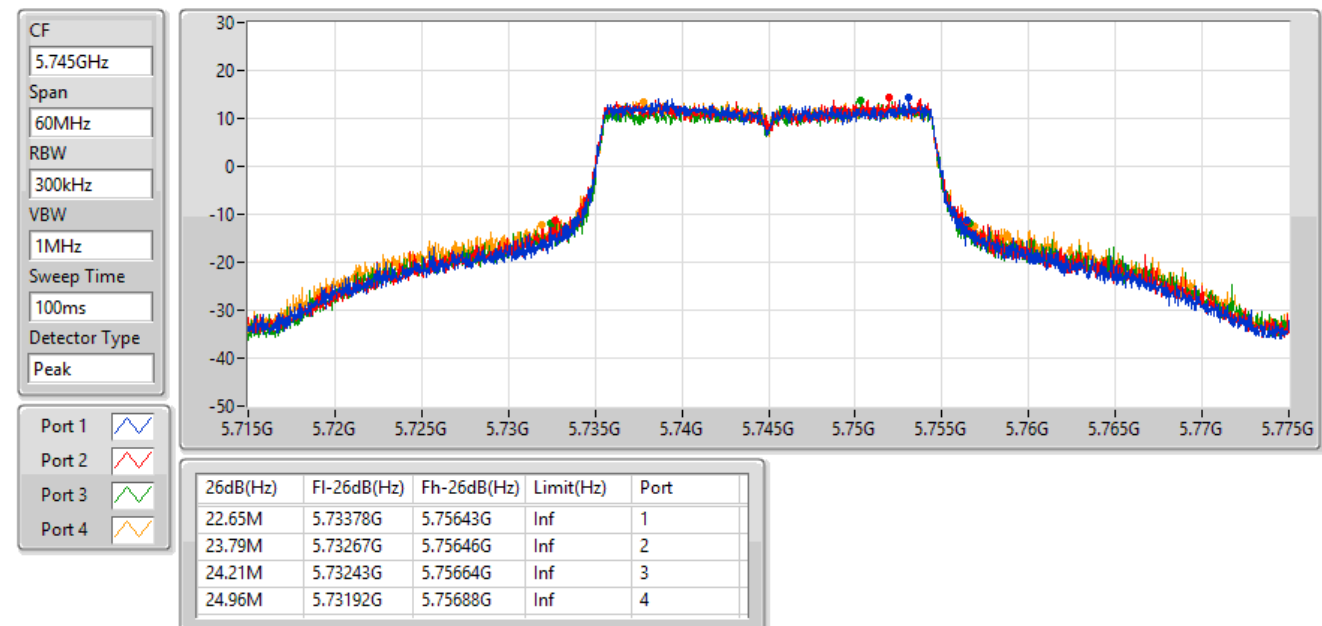


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

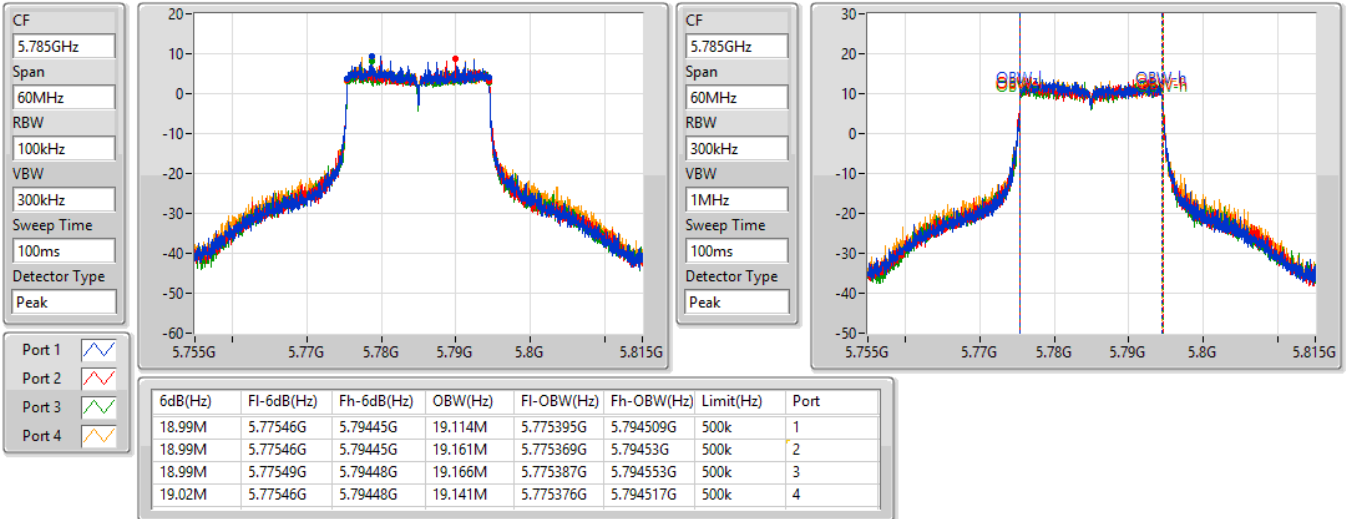
5745MHz

19/09/2022

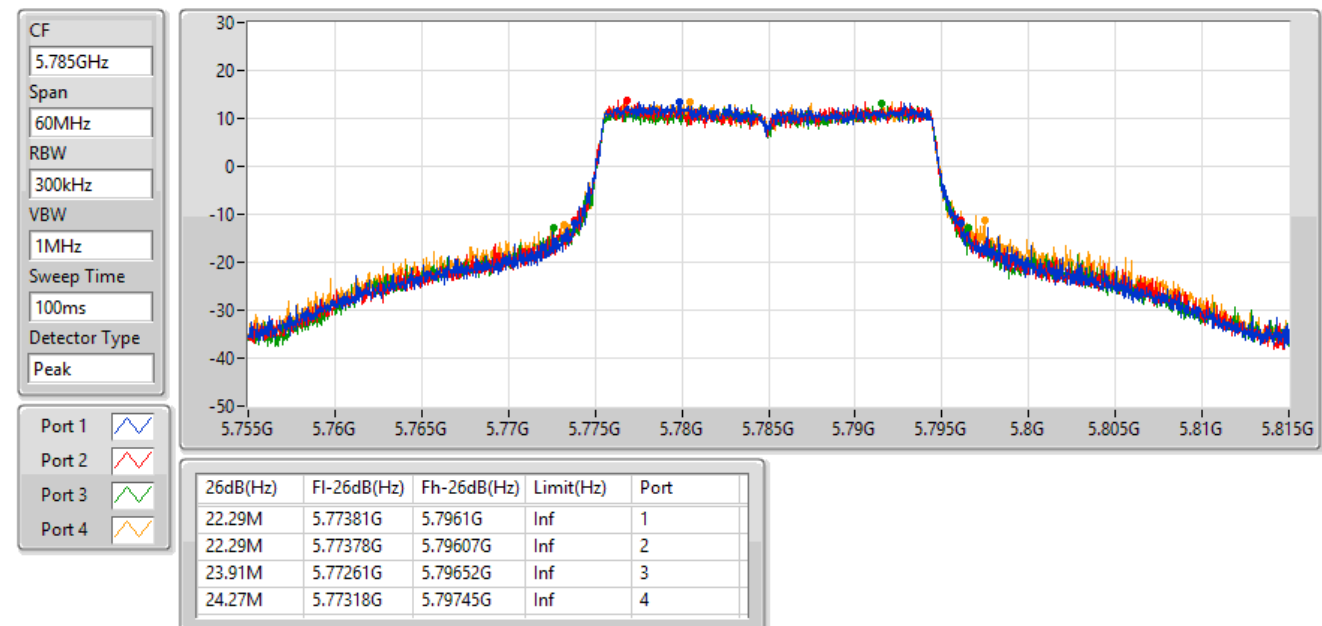


802.11ax HEW20_Nss1,(MCS0)_4TX
EBW
5785MHz

19/09/2022

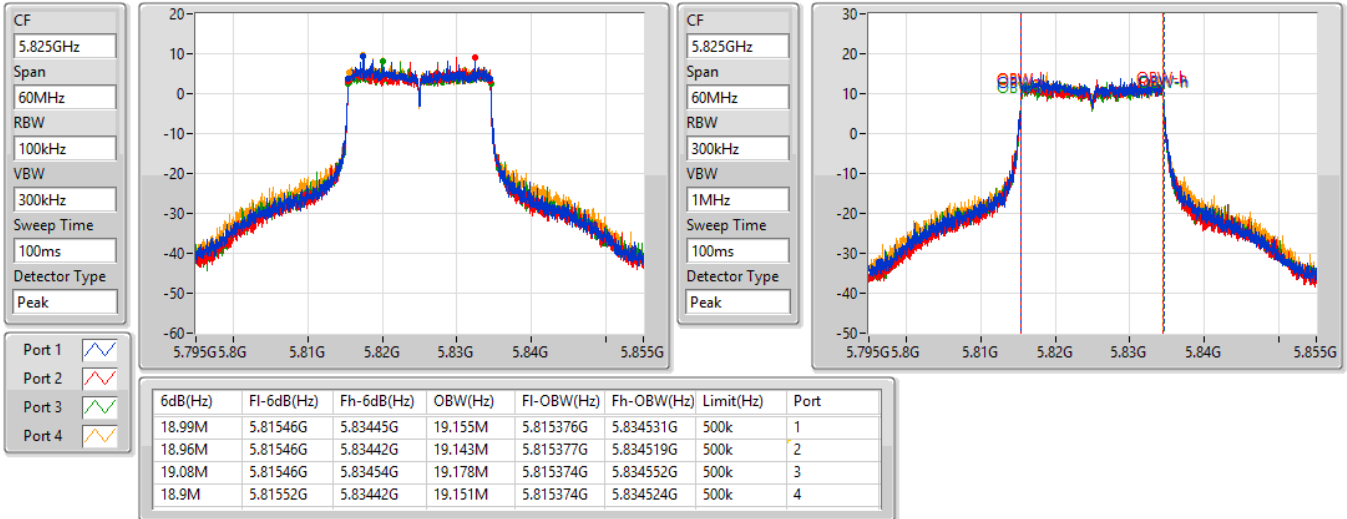

802.11ax HEW20_Nss1,(MCS0)_4TX
EBW
5785MHz

19/09/2022

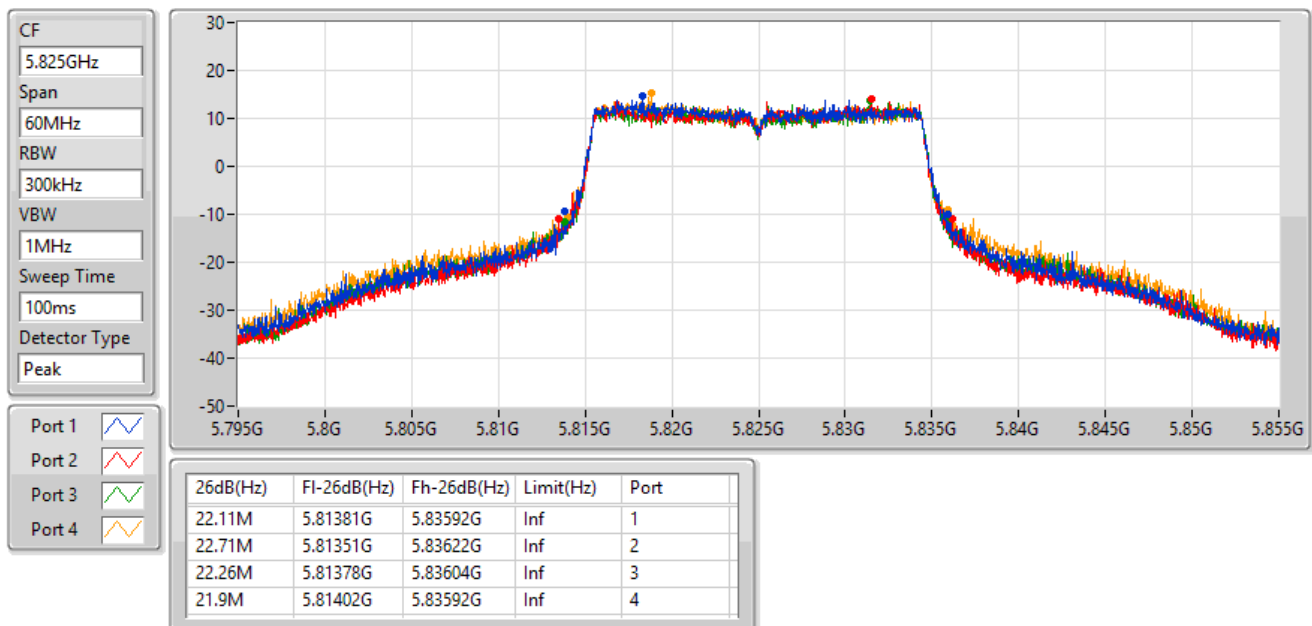


802.11ax HEW20_Nss1,(MCS0)_4TX
EBW
5825MHz

19/09/2022

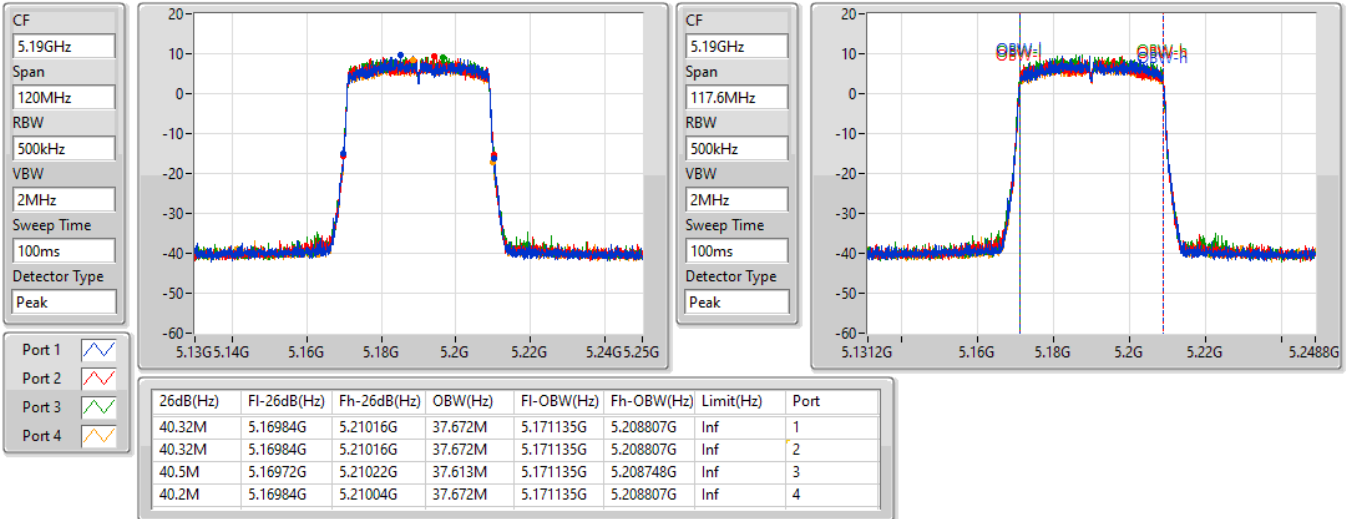

802.11ax HEW20_Nss1,(MCS0)_4TX
EBW
5825MHz

19/09/2022



5.15-5.25GHz_802.11ax HEW40_Nss1,(MCS0)_4TX
EBW
5190MHz

13/10/2022


802.11ax HEW40_Nss1,(MCS0)_4TX
EBW
5230MHz

28/09/2022

